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ON THE DISSIPATION OF ENERGY.

BY LORD KELVIN.*

THE old chimera of "the perpetual motion" still lives, not so much in popular belief as in the scientific imagination. If we are now to feel sure that it has no more real existence than the fabled monster of Lycia and Etna, it is primarily because naturalists have failed, after diligent and persevering search, with all the help they could get from the science and art department of mankind ever since its commencement many thousand years ago, to find any creature fulfilling the imagined characteristics; not because philosophy can prove any absurdity in the idea that such a species should exist. In its original form of a machine which could do work without food, or fuel, or supply of energy from wind or water, or other external

source, the perpetual motion was dead to science long before Newton's time: and on the negation of it Stevinus founded a beautiful proof of the parallelogram of forces, which is celebrated in the history of dynamics, and is still justly admired. But the doctrine of the "Conservation of Energy," which has grown up since the end of last century, has given a fresh lease of life to the idea of the perpetual motion revived in a more subtle form.

From Rumford, Davy, and Joule we have learned that the reason why every machine, even though not called upon to give out work done by it, must come to rest, is not, as was generally supposed by contemporary and preceding philosophers, because the friction that stops the machine implies annihilation of energy, but because it converts into heat the energy given initially in the motion of the machine. Suppose now we could guard perfectly

* Lord Kelvin will be better remembered by most of our readers as Sir William Thomson, the peerage having been recently acquired.

against loss of heat by radiation, or by cooling currents of air, or by conduction along the supports of the machine, might we not annex to it a motor, acting on the same principle as the steam-engine, which would reconvert into motion of the machine the heat which is developed by friction? Have we not here a good scientific foundation for believing that a fly-wheel set in motion, or clock-work driven by the unwinding of a spring or the running down of a weight, and connected with the heat engine worked by the heat generated by its friction, only wants an impermeable encloser preventing all loss of heat to allow it to go on forever? Of course, this impermeable encloser is not realizable, but it is both a scientific and a practical consideration to think what might be done if we had an impermeable substance of which an enclosing case for the instrument could be constructed. We know by the principle of the "Conservation of Energy" that all the energy we gave to the machine is always all there; some of it in heat and the rest in energy of the weight or spring not quite run down, or in the visible motion of the fly-wheel, or wheels, or vibrating pendulum, or other moving parts of the mechanism.

Why not convert and re-convert continually into motion of the fly-wheel, or energy of the spring, or weight wound up, all the heat generated by the friction in the machine? To this question Carnot,*

* Sadi Carnot, born in 1796, son of the Republican War-Minister, and uncle of the President of the French Republic. He inherited from his father a chivalrous motivity of disposition, which was prettily illustrated by a little piece of history of the year 1800 told by his brother Hippolyte, in the biographical sketch referred to below.

The Directory had been superseded by the Consulate. Carnot having returned to his country after two years of exile was called to be War Minister. . . . When the Minister went to the Malmaison for his official work with the first Consul he often brought with him his son, about four years old. The boy on these occasions lived with Madame Bonaparte, who had a great affection for him. One day she was rowing about in a boat with some of her ladies. Bonaparte came and amused himself by throwing stones into the water round the boat, so as to splash the fresh dresses of the rowers. The ladies did not dare to show their displeasure openly. The little boy, after having watched for some time what was going on, came suddenly and squared up to the conqueror of Marengo, threatening him with his fist, and cried out, "Animal de Premier Con-

sul, veux-tu ne pas taquiner ces dames?" Bonaparte at this unexpected attack stopped, looked with astonishment at the child, and then fell into a hearty fit of laughter which spread to all the spectators of the scene.

in 1824, in his *Réflexions sur la Puissance Motrice du Feu*, showed how to find a negative answer, to be founded, not on any then known law or principle in Natural Philosophy, but rather on general observation of natural phenomena, on experience in practical mechanics, and on experimental investigation of properties of matter;—an answer founded on knowledge acquired in what may be called the "natural history stage" of progress toward truth.

That little essay was indeed an epoch-making gift to science. From it we have learned that heat is only available for a steam-engine, or an air-engine, or a gas-engine, in proportion to the excess of the temperature of the matter in which it is given above the temperature of the coldest matter obtainable for use in connection with the engine to carry heat away from it continually during the time it is working. Every heat motor (as for brevity we may call any heat engine doing mechanical work in virtue of heat supplied to it) requires difference of temperature in different parts; or in the same part at different times, as in the old Newcomen condensing-engine before Watt's improvement of the separate condenser was introduced. Heat is essentially taken in by the engine at the higher temperature and given out at the lower temperature. All this was taught by Carnot, in 1824, but with it, in his original essay, was involved the then almost universally prevailing idea that heat was a material substance, and that therefore the quantity of heat given out by the engine at the lower temperature must be exactly equal to the quantity of heat taken in at the higher temperature. Carnot died in 1832 (two years after the Revolution of 1830), at the age of thirty-six. If he had lived a few years longer, or if his short life, begun in the Reign of Terror, had been less troubled * by the political

* "These researches" [in thermodynamics] "were roughly interrupted by a great event, the Revolution of July, 1830. . . . Sadi frequented the popular meetings of this epoch, without, however, going beyond the character of a simple observer. . . . On the day of the funeral of General La Marque, Sadi was taking a walk out of curiosity in the neighbor-

miscarriages of his country and repetitions of revolutionary violence, we should have learned much more from him. Manuscript journals and memorandums, found among his papers and published* after his death (but not published before Joule had finally convinced the world of the immateriality of heat and had measured its dynamical equivalent), proved that Carnot had lived long enough to see irrefragable reasons for abandoning the doctrine of the materiality of heat and for confidently believing that heat is in reality motion among the particles or molecules or atoms of matter; and that he had taught himself decisively and thoroughly the doctrine of the "Conservation of Energy," which, ten years later, was given to the world by Joule with his first determination of the Mechanical Equivalent of Heat.

To the reprint (sixty-five pp.) of Carnot's original essay of 1824 are appended thirty-three pages of *Extrait de Notes Inédites de Sadi Carnot, sur les Mathématiques, la Physique, et autres sujets*, and twenty-one pages of biographical sketch of the author, by his younger brother, Hippolyte Carnot, whose name, as a very benevolent writer and worker in political and social affairs, was well known in 1845 † among Paris booksellers, none

hood of the insurrection. A mounted soldier, who seemed drunk, passed at a gallop through the street brandishing his sabre and striking at passers-by. Sadi dashed forward, skilfully avoided the weapon of the soldier, seized him by the leg, dragged him off his horse, laid him gently in the gutter, and continued his walk; stealing himself away from the acclamations of the crowd, who were astonished at this bold *coup de main*."—From *Notice Biographique*, p. 78, by his brother Hippolyte Carnot, referred to below.

* "Réflexions sur la Puissance Motrice du Feu et sur les Machines Propres à développer cette Puissance," par S. Carnot, Ancien Élève de l'École Polytechnique, Paris, 1824. Of this publication, with its appendices of biographical sketch by his younger brother, Hippolyte Carnot, and extracts from unpublished writings of Sadi, an English version has been published in America (and in England, Macmillan & Co., 1890) under the editorship of Dr. Thurston, Cornell University, who adds to it a short article by himself, on "The Work of Sadi Carnot," full of interesting matter.

† I went to every book-shop I could think of, asking for the *Puissance Motrice du Feu*, by Carnot. "Caino? Je ne connais pas cet auteur." With much difficulty I managed to explain that it was "r" not "i" I meant. "Ah! Ca-rrr-not! Oui, voici son ouvrage,"

of whom, so far as my inquiries went, had ever heard of Sadi or his *Réflexions sur la Puissance Motrice du Feu*.

Here are some of Carnot's words literally translated (from pp. 95, 96):—

"Heat is nothing else than motive power, or rather motion which has changed its form. It is a motion among the particles of bodies. Wherever there is destruction of motive power there is at the same time production of heat in quantities precisely proportional to the quantity of motive power destroyed. Conversely wherever there is destruction of heat there is production of motive power.

"We may then assert the general proposition that motive power is of invariable amount in nature; that it can never, properly speaking, be said to be either produced or destroyed. In truth, it experiences changes of form, that is to say, it produces sometimes one kind of movement, and sometimes another, but it is never annulled."

These words contain a perfectly clear and general statement of the "Conservation of Energy;" but Carnot did not live long enough to see how his original doctrine of the motive power of fire was to be reconciled to this principle. He says (p. 92):—

"It would be difficult to say why, in the development of motive power by consuming the heat of a hot body, a cold body is necessary; or why we cannot produce motion simply by consuming the heat of a hot body."

"When we produce motive power by the passage of heat from the body A to the Body B, is the quantity of this heat which is delivered to B (if it is not of the same amount as that taken from A, if a part is really consumed to produce motive power), the same, whatever be the substance employed [in the ideal engine] to realize the motive power?"

"Could there be possibly a means [or substance] for causing more heat to be consumed in producing motive power, and, therefore, less to be delivered to the body B? Would it be possible even to consume the whole heat taken from A without the necessity of delivering any heat to B? If this were possible we could create motive power without fuel, and simply by destruction of some of the heat of bodies."

In these last words (which I have given in italics) we have from the founder of our theory of the steam-engine and other heat motors, and the profoundest thinker in thermodynamic philosophy of the first thirty years of the nineteenth century, a thoroughly clear statement of the old perpetual motion in its most subtle nineteenth-century form. But this statement

producing a volume on some social question by Hippolyte Carnot; but the *Puissance Motrice du Feu* was quite unknown.

is put as a question with clear indication of a bias towards a negative answer : and it is impossible to doubt that Carnot would have unhesitatingly given the negative answer if a little more time had been allowed him for thinking out the thermodynamic problem. Happily, however, Carnot's original essay led others to give it. My brother, Professor James Thomson, assumed a negative answer without proof, and founded on it his theoretical demonstration that the freezing point of water is lowered by pressure.*

Two years later † I gave the negative answer as an axiom in the following terms :—" It is impossible, by means of inanimate material agency, to derive mechanical effect from any portion of matter by cooling it below the temperature of the coldest of the surrounding objects. If this axiom be denied for all temperatures, it would have to be admitted that a self-acting machine might be set to work and produce mechanical effect by cooling the sea or earth, with no limit but the total loss of heat from the earth and sea, or, in reality, from the whole material world."

My statement of this axiom was limited to inanimate matter because not enough was known either from the natural history of plants and animals or from experimental investigations in physiology to assert with confidence that in animal or vegetable life there may not be a conversion of heat into mechanical effect not subject to the conditions of Carnot's theory. It seemed to me then, and it still seems to me, most probable that the animal body does not act as a thermodynamic engine in converting heat produced by the combination of the food with the oxygen of the inhaled air, but that it acts in a manner more nearly analogous to that of an electric motor working in virtue of energy supplied to it by a voltaic battery. According to either

view, however, the mechanical effect achieved by an animal in walking up-hill, or in flying or swimming, or in dragging loads along the ground, or in acting as motor for a horse-mill, or tread-mill, or a crank, or a lever as for pumping, or for any kind of mechanism, is a part equivalent for the oxidation of the food ; the rest of the equivalent being animal heat. Joule estimated that from $\frac{1}{4}$ to $\frac{1}{5}$ of the dynamical equivalent of the complete oxidation of all the food consumed by a horse may be produced from day to day in mechanical effect as of weights raised, the remainder, or from $\frac{3}{4}$ to $\frac{4}{5}$, being evolved and given out as heat ; and similar proportions seem to hold for the mechanical work and the development of heat by a healthy vigorous workingman. It is, however, conceivable that animal life might have the attribute of using the heat of surrounding matter, at its natural temperature, as a source of energy for mechanical effect, and thus constituting a case of affirmative answer for Carnot's last thermodynamic question. The influence of animal or vegetable life on matter* is infinitely beyond the range of any scientific inquiry hitherto entered on. Its power of directing the motions of moving particles, in the demonstrated daily miracle of our human free-will, and in the growth of generation after generation of plants from a single seed, are infinitely different from any possible result of the fortuitous concurrence of atoms ; and the fortuitous concurrence of atoms is the sole foundation in Philosophy on which can be founded the doctrine that it is impossible to derive mechanical effect from heat otherwise than by taking heat from a body at a higher temperature, converting at most a definite proportion of it into mechanical effect, and giving out the whole residue to matter at a lower temperature.

The considerations of ideal reversibility, by which Carnot was led to his theory, and the true reversibility of every motion in pure dynamics have no place in the world of life. Even to think of it (and on the merely dynamical hypothesis of

* *Transactions of the Royal Society of Edinburgh*, January 2nd, 1849, reprinted in *Cambridge and Dublin Mathematical Journal*, November, 1850, and quoted in *extenso* in vol. i., *Mathematical and Physical Papers*, Sir W. Thomson (pp. 156-164).

† *Transactions of the Royal Society of Edinburgh*, March, 1851, and *Philosophical Magazine*, IV. 1852, "On the Dynamical Theory of Heat, with Numerical Results deduced from Mr. Joule's Equivalent of a Thermal Unit, and M. Regnault's Observations on Steam," reprinted in vol. i., Sir W. Thomson's *Mathematical and Physical Papers*.

* About twenty-five years ago, I asked Liebig if he believed that a leaf or a flower could be formed or could grow by chemical forces. He answered, "I would more readily believe that a book on chemistry or on botany could grow out of dead matter by chemical processes."

life we can think of it as understandingly as of the origination of life and evolution of living beings without creative power), we must imagine men, with conscious knowledge of the future but with no memory of the past, growing backward and becoming again unborn; and plants growing downward into the seeds from which they sprang. But the real phenomena of life infinitely transcend human science: and speculation regarding consequences of their imagined reversal is utterly unprofitable. Far otherwise, however, it is in respect to the reversal of the motions of matter uninfluenced by life, a very elementary consideration of which leads to the full explanation of the theory of the dissipation of energy.

Carnot's theory of the perfect heat engine is essentially founded on the consideration of a reversible cycle of processes. The perfect engine is essentially an engine which can be worked backward with every action in its cycle exactly reversed. When working forward it performs mechanical work in virtue of heat taken from a hot body, A, of which a certain portion is essentially given to a body, B, at a lower temperature. To reverse its action mechanical work must be done upon it, and the equivalent output is a certain quantity of heat taken from the cold body, B, and a greater quantity given to the hot body, A. The excess of the quantity of heat taken from A above that given to B when the engine works forward, and the excess of the heat given to A above that taken from B when the engine is worked backward, is equal to the quantity of heat which has the same dynamical energy as the work done *by the engine*, in the case of working forward, and the work done *upon the engine by an external agent*, when the engine is worked backward.

It is impossible to fulfil the condition of perfect reversibility by any engine composed of any real material to be found in nature. The friction of the parts, and the impossibility of getting heat into the engine from A, and causing heat to leave the engine and pass into B, except by falls of temperature from the temperature of A to the highest effective temperature of the engine, and from the lowest effective temperature in the engine to the temperature of B, violate the condition of perfect reversal and involve essentially irreversible actions in the cycle of the engine, whether

working forward or worked backward. In the condensing steam-engine, A is the burning coal of the furnace. The highest effective temperature in the engine is the temperature of the steam entering the cylinder from the boiler. The lowest effective temperature is the temperature of the "exhaust steam," that is to say, of the steam coming out of the cylinder in a single cylinder engine, or out of the lowest-pressure cylinder in a triple or quadruple expansion engine. In a condensing engine, B is the condensing water: in the non-condensing engine, B is the air into which the waste steam is blown. The superiority of the double, triple, and quadruple expansion engines, over a single cylinder engine, is due to their diminishing the ineffective droppings down of temperature, between the highest temperature to which the water of the boiler can be raised for safe and effective use, and the temperature of the exhaust steam. The superior efficiency of a condensing engine consists in its allowing the temperature of the exhaust steam to be about 40° or 50° C., instead of its being a degree or two above 100° , as it essentially is in the non-condensing expansive engine. James Watt was, by his separate condenser, his use of expansion in single cylinder engines, and his origination of the now generally employed plan of double, or triple, or quadruple expansion engine, with his perfect tact and judgment as to practical economy, and his profound scientific knowledge of mechanics and of the properties of steam, arranging his engine to as nearly as possible fulfil Carnot's condition of reversibility, by minimizing every irreversible action in its cycle of work. But it seems certain that he had no idea of Carnot's grand generalization, according to which one perfectly reversible engine would give exactly as much work as any other, of whatever different substance or character, using heat supplied at the same temperature, and having the same lower temperature available for the carrying away of waste heat.

Exhaustive consideration of all that is known of the natural history of the properties of matter, and of all conceivable methods for obtaining mechanical work from natural sources of energy, whether by heat engines, or electric engines, or water-wheels, or windmills, or tidemills, or any other conceivable kind of engine,

proves to us that the most perfectly designed engine can only be an approach to the perfect engine; and that the irreversibility of actions connected with its working is only part of a physical law of irreversibility, according to which there is a universal tendency in nature to the dissipation of mechanical energy; and any partial restoration of mechanical energy is impossible in inanimate material processes, and is probably never effected by means of organized matter, either endowed with vegetable life, or subject to the will of an animal.

Some mathematical details regarding cases of this law will be found in a short paper* in the *Proceedings of the Royal Society of Edinburgh* for April 19, 1852. The dynamical explanation of it, founded essentially on consideration of the vastness of the numbers of freely moving atoms or particles in even the smallest portion of palpable matter, and the infinity of such motions in the material universe, is given in a paper, entitled "The Kinetic Theory of the Dissipation of Energy," which was communicated to the Royal Society of Edinburgh twenty-two years later† and which is republished in the *Philosophical Magazine* for the present month (March, 1892).

We have been considering a fly-wheel or clockwork driven by a weight and the heat generated by friction against the motion of wheels and pendulum, and by impacts of teeth against the pallets of an escapement. Our knowledge of properties of matter and of modes of propagation of heat by radiation or conduction, and of the efficiency of heat as a motor, discovered by several thousand years of observation and several hundred years of experiment and dynamical theory, suffices to show that when the weight is run down, and the potential energy (or capacity to do work), which it had in the beginning, has been all spent in heat, this heat is not available for raising the weight and giving the clockwork a renewed lease of motivity. The solar system, according to the best of modern scientific belief, is dynamically analogous to the clockwork, in all the es-

entials of our consideration. Not going back in thought to a beginning of which science knows nothing, let us compare the solar system as it was three thousand years ago with the solar system as it is now. Let our analogue be a clockwork which three hours ago was known to be going with its weight partially run down, and which is still going with its weight not yet wholly run down.

During these three thousand years the sun has been giving out radiant heat (light being included in the designation "radiant heat") in all directions, propagated at the rate of about nine and a half million million kilometres* per year, and therefore twenty-eight and a half thousand million million kilometres in three thousand years. We do not know whether the light which left the sun three thousand years ago is still travelling outward with almost undiminished energy, or whether nearly all is already dissipated in heat, warming the luminiferous ether, or ponderable bodies which have obstructed its course; we may, I think, feel sure that it is partly still travelling outward as radiant heat, and partly spent (or dissipated) in warming ponderable matter (or ponderable matter and the luminiferous ether).

The running down of the weight in the clockwork has its perfect analogue, as Helmholtz was, I believe, in reality the very first to point out, in the shrinkage of the sun from century to century under the influence of the mutual gravitational attractions between its parts. The heat-producing efficiency of the fire which there would be if the sun were a globe of gunpowder or guncotton burning from its outward surface inward—that is to say, the work done by the potential energy of the chemical affinity between uncombined oxygen, and carbon and hydrocarbons, attractive forces as truly forces, and subject to dynamic law, as is the force of gravity itself, is absolutely infinitesimal in comparison with the work done by the gravitational attraction on the shrinking mass adduced by Helmholtz as the real source of the sun's heat.

The whole store of energy now in the sun, whether of actual heat, corresponding to the sun's high temperature, or of potential energy (as of the not run-down

* "On a Universal Tendency in Nature to the Dissipation of Mechanical Energy," republished in vol. i. of *Mathematical and Physical Papers*, pp 511-514.

† *Proceedings of the Royal Society of Edinburgh*, February 16, 1874.

* The "kilometre" is sixty-two hundredths of the British statute mile; rather a long half mile, in fact.

weight of the clockwork)—potential energy of gravitation depending on the extent of future shrinkage which the sun is destined to experience, is essentially finite; and there is much less of it now than there was three hundred thousand years ago. Similar considerations of action on a vastly smaller scale are, of course, applicable to terrestrial plutonic energy, and thoroughly dispose of the terrestrial "perpetual motion," by which Lyell* and other followers of Hutton, on as sound principles as those of the humblest mechanical perpetual-motionist, tried to find that the earth can go on forever as it is, illuminated by the sun from infinity

of time past to infinity of time future, always a habitation for race after race of plants and animals, built on the ruins of the habitations of preceding races of plants and animals. The doctrine of the "Dissipation of Energy" forces upon us the conclusion that within a finite period of time past the earth must have been, and within a finite period of time to come must again be, unfit for the habitation of man as at present constituted, unless operations have been, and are to be, performed which are impossible under the laws governing the known operations going on at present in the material world. —*Fortnightly Review*.

A WORD WITH THE PHYSICIANS.

BY THE EARL OF DUNRAVEN, K.P.

THAT in ordinary cases it would very rightly be considered rash beyond the bounds of sanity for mere laymen to trespass upon the thorny preserves of medical disputation is a fact thoroughly realized by them. Though, according to the wisdom of Carlyle, the vast majority are fools, yet their folly is not of a sufficiently aggressive and active character to induce them to rush in where even angelic doctors of medicine seem delicately reluctant to tread. As a rule we abstain from audible comment even when doctors disagree. But circumstances alter cases. It is not usual to find medical subjects dogmatically and didactically treated in the columns of the lay Press. Dr. MacLaggan's article in the *Nineteenth Century* of last month is an exception to the general medical rule; and, in the wide field of speculation opened up by it, an exception to the general lay rule may also possibly be found.

Moreover, lay human bodies being more numerous than properly qualified medical human bodies, it follows that the interesting but inconvenient bacilli infesting our interiors exceed by countless myriads the number of those minute organisms that have had an opportunity of personally investigating the systems of members of the medical profession. For these and other

obvious reasons, we, the general public, are at the present time unusually occupied with the consideration of the subject of our own bodies and the bodies of our parasites. Their nature, mutual action, interaction, and reaction upon each other are profoundly interesting to us. An ordinary member of a greatly suffering community may therefore possibly be excused for commenting upon or even attempting to criticise an article which dogmatically lays down a definite method of treatment to be adopted toward the present epidemic, and which attempts to justify that method by reference to observed results, to bacteriology, and to the reputed effects of certain drugs. If the facts in the article are beyond dispute, if the logic is sound, and if the deductions are justified, we need be troubled by no further anxiety with respect to influenza: the subject may be dismissed from our minds as easily as the object can be expelled from our bodies. But, on the other hand, if the article in question does not fulfil those conditions, the gravity of the situation may be intensified by our lending too ready credence to it. While fully recognizing the ability displayed, I venture to think that a perusal of Dr. MacLaggan's statements and arguments must—far from allaying our alarms—have created a feeling of doubt, distrust, and dissatisfaction. The article is based upon foundations of fact which appear somewhat small and un-

* *Principles of Geology*, vol. ii., edition 1868, p. 213 and pp. 240-243 (Recapitulation of Chapters XXXII. and XXXIII., 1, 10, 15).

steady ; its conclusions are not necessarily warranted by the facts ; and in its method but little scientific exactness is shown. And it lifts the corner of a veil which, if faith or superstition has any value in healing, had better perhaps have remained closed, revealing vast and gloomy depths of uncertainty most disquieting to our minds. It is in the hope of eliciting such information as will prove our doubts to be unfounded, and our fears misplaced, that I venture to make a few remarks from the common-sense point of view of the ignorant, uninstructed, and unqualified lay mind.

To begin with the purely practical aspect of the case. Salicin is recommended as a certain preventive and cure of influenza ; and the suggestion is referred for its sanction to personal experience, to analogy, and to conclusions arrived at by means of ratiocination. The personal experience is both of a negative and a positive character. Dr. MacLaggan denies that salicin ever produces uncomfortable results. How does he know ? By experiment and experience. He has taken it, and he is acquainted with certain other people who have done the same ; and, in his experience, no unpleasant consequences have ensued. So far, so good ; but experience, to be worth anything, must be balanced with other experiences, and in a question consisting of merely observing and recording sensations the experience of a layman is at least as good as that of a medical man. In reality it is far better ; for the layman has no preconceived notions as to the effect which the drug ought, or is supposed, or is desired, to produce. His mind is as negatively open to record sensations as his body is positively open to receive the prescribed compound giving rise to those sensations. Personally, I have consumed salicin, and I enjoy the privilege of intimate friendship with others who have pursued the same course. The invariable result has been the development of singularly unpleasant sensations in the head and throughout certain parts of the nervous system generally. Reasoning, therefore, as in following Dr. MacLaggan's method I am entitled to do, from small to great, I am justified in assuming that all other persons addicted to the use of salicin are suffering in the same way. Dr. MacLaggan's article being very lucid and suggestive, it is more than probable that its

recommendations have been followed by the readers of the *Nineteenth Century* and their friends. What the metropolitan circulation of the *Nineteenth Century* amounts to I am unable to say. But it is tolerably safe to predict that at the present day an equal number of persons are walking about London in the enjoyment of strange, abnormal headaches. That is the probable result of the article ; the certain result is a "boom" in salicin. So much for the assumed harmlessness of that drug. The assumption is, in reality, based on nothing more solid than conjecture ; and, until it is borne out by carefully conducted and widely extended observation, the public will be wise if they hesitate to saturate themselves with a drug the effects of which are not ascertained.

The argument as to its beneficial character, also derived from personal experience and observation, is as follows : The writer of the article took salicin as a prophylactic during two epidemics, and escaped unscathed. In the pressure of business during a week he neglected to swallow the daily dose, and was down with the plague at once—an obvious case of cause and effect : at least, so we are told. The drug procured immunity from the disease ; the disease manifested itself immediately in the absence of the drug. But is not such reasoning a trifle hasty and superficial ? Are we to believe that immunity from influenza is confined to persons who have taken salicin ? Has no one else escaped ; have not people using some other drug eluded the clutches of *la grippe* ; and has not exemption been enjoyed by persons who have taken no drug whatsoever ? Are we even to understand that out of those persons who have not been afflicted with influenza the vast majority, or a majority, or even a large minority, have been in the habit of taking preventive doses of salicin ? Until we are informed on these points one individual experience is but of little value. It would be instructive also to know something more of the experimenter's mode of life, to be sure that nothing else had been done likely to ward off an attack, and to feel confident that no other sin of omission had occurred. Dr. MacLaggan may, in the supreme stress of business, have neglected to eat a mutton chop, or to drink a glass of wine, to wear a woollen comforter or to change his damp boots : indeed, the

omission of such salutary operations is more than likely, as any one of them involves a greater loss of valuable time than is necessary for the consumption of ten grains of salicin. Until we know all about these facts, and are informed also as to how many people equally exposed to the infection or contagion, if there be any, escaped without the employment of salicin, or succumbed although using that drug, the personal experience of Dr. MacLaggan, though interesting, is of no great scientific value. No greater importance can be attached to it than to the experience of any one else. In an experimental search of this kind after cause, one man's experience is as good as another's.

Albeit naturally reluctant to obtrude my personal experience upon the public, I do not hesitate to do so for the sake of science. Though on many occasions as much exposed to contagion and infection as any person could be, I passed through two epidemics and most of a third in such an entirely satisfactory condition of bodily health that influenza ceased to have any terrors whatever for me. I simply laughed at it. I took no precaution: used no prophylactic, made no change in the ordinary habits, customs, and routine of life. But—mark this, for it is a matter of vast importance—during the whole of that time I never drank one drop of Rhine wine! In an unguarded moment, I did consume the best part of a bottle of the juice of a famous Rhineland grape, and two hours after I was smitten with the plague. According to Dr. MacLaggan's deductive method, the inference is perfectly plain; I only trust it is not also actionable; but for the sake of humanity even the risk of libel must be run. It may be mere coincidence; so also may be Dr. MacLaggan's attack and his previous immunity from disease. The logic is identical in both cases: if cause and effect is evident in Dr. MacLaggan's experience it is equally evident in mine. True; I am not quite certain that on the last occasion on which I mentioned influenza, I did not omit to knock three times under the table and say "*Umberufen*." But I scarcely think I could have been so remiss. No. In the presence or the absence of Rhine wine in the system I am compelled to recognize the cause of influenza, and of previous immunity from that

fell disease. Doubtless, had I drunk more I should have been much worse.

A careful consideration of the foregoing facts will, I trust, cause all candid and unbiassed minds to hesitate before committing themselves to any theory of prevention based upon mere individual experience. But the value of salicin is, it is stated, proved by largely extended experiment.

Dr. MacLaggan says that he knows some one else who has treated 215 cases of influenza with salicin, and that they all recovered. Though the evidence is second-hand, it may be taken as trustworthy; and it indicates a state of things most satisfactory, but of no value whatever unless it can be shown that dissimilar means have not produced similar results. Far from that being the case, it appears that equally good results have been observed amid totally different circumstances. Dr. Robson Roose informs us, through the *British Medical Journal*, that he has treated over three hundred cases of influenza by various means, and adds that they all did well, and, in his opinion, did equally well under the various remedies adopted. Will the medical profession generally, or the accredited organs of that profession, or the *Nineteenth Century*, or somebody or something, give us the results attained by the employment of other drugs, or, if medical men will be sufficiently ingenuous, the results obtained by practically eliminating drugs from treatment altogether? Until that is done the mere fact that a certain number of people had influenza, took salicin, and recovered, proves nothing whatever but this: Assuming, as no doubt we may, that the drug was wisely administered, it is proof that salicin, amid those circumstances, is not generally inimical to human life.

But we are further informed that, reasoning from ascertained data as to the habitat, nature, qualities, and effects of the cinchona tree, a specific for the influenza ought to be found in the willow. The cinchona, we are told, grows best in countries subject to malarial fever, and its bark cures that fever. As a matter of fact, the area of the earth's surface in which chills-and-fever and the Jesuits' tree are naturally coincident is exceedingly small as compared with the ague-cursed area in which the cinchona tree is not

indigenous. But let that pass. It is a pretty theory that for every disease Nature provides a remedy on the spot, if we can only find it; and it may be approximately correct. The argument is this: Where ague abounds cinchona flourishes, and the bark of that tree cures ague; where rheumatism abounds the willow grows, therefore willow bark cures rheumatism; influenza is rheumatism, therefore willow bark cures influenza.

Such is the chain of reasoning, more or less faulty (surely) in every link, and especially so as regards the last, unless indeed it be known for certain that influenza is a variety of rheumatism. But is that absolutely proved? Is it even the general opinion of experts that influenza is rheumatism, or a variety of rheumatism? If this line of argument is to be followed out, undoubtedly our attention ought to be especially directed to the blue gum, for that tree is known to exercise a beneficial effect upon the external conditions that give rise to malarial fever. I have never seen it stated that the planting of willows will free a locality from rheumatism, so that the growth of the cinchona producer that effect upon malarial poisons. But it is certain that malarial districts are in some way or other disinfected by the cultivation of the eucalyptus; and if there is any connection between malarial fever and influenza we ought, according to Dr. MacLaggan's theory, to turn to the bark of that tree rather than to the cinchona or the willow for a cure. But has influenza any connection with malarial fever, or with rheumatism? and, if so, what is malarial fever and what is rheumatism? Will experts explain? To the dull eye of the mere layman influenza seems to possess as many natures as there are letters in its preposterous name. It is Protean in its aspect, and is marked by no distinctive type. In some it begins with violent sickness; in others with shivering fits, muscular pains, catarrh, sore throat, nervous prostration, hysterics, and I know not how many other symptoms of a disagreeable kind. It manifests itself in a hundred different expressions of bodily pain; and its fatality appears to consist—not in its own morbid action, but—in a faculty which it possesses of affording a good opportunity for the manifestation of any inherited or acquired weakness or disease. From the ignorant-layman point of view,

influenza appears to be an abnormal condition of the bodily functions generally, rather than a specific disease due to a specific cause, and that cause the introduction into the body of a specific germ.

The germ theory—that is, as I understand it, the theory that disease is caused by the introduction of a few microbes into the body and their natural multiplication—is, we are told, sustained by the period of incubation always observed in diseases attributable to the presence of living organisms in the body. I learn from Dr. MacLaggan that in two weeks one germ, which I may inadvertently swallow, will have multiplied to over sixty-seven millions of germs. If that be so the validity of his deduction that “the rapid reproduction of these minute organisms cannot fail to have a seriously disturbing action on the system” is beyond dispute. I should think so, indeed. Sixty-seven millions to one is very long odds, and it seems obvious that one's system must first disturb and then destroy the microbes, or that the microbes will first disturb and eventually destroy one's system. But does the fact of so-called incubation actually prove the theory of the rapid reproduction of living organisms? Do not inorganic substances exist which are cumulative in their action in the human body? and if that be so I ask for information—may we not be simply storing up during the period of incubation inorganic poisons which, having arrived at a certain volume, burst suddenly into effect?

But if the living-organism theory is correct, as seems probable, what hope of salvation does it convey to our suffering minds? According to Dr. MacLaggan, the whole question of disease, and of its prevention and cure is simplicity itself. A human being swallows a germ. The germ finds a nidus, and multiplies exceedingly. The action that takes place in the nidus corresponds to the impregnation of the ovum in the higher animals. In their rapid reproduction the germs exhaust the nidus. The parasites use up the nitrogen and water intended for the renewal of tissue, and the infested person dies of starvation. The position of the nidus, and the length of time required to exhaust it, determine the contagious character and the duration of the disease. Such is the thesis; but Dr. MacLaggan's article will be perused in vain for adequate arguments

in its support. The language is dogmatic in the extreme; but is it justified by the condition of human knowledge? On the highly technical questions involved I would not venture to hold any opinion; but on points appealing to common sense and ordinary observation any one may speak.

The microbe requires a suitable nidus. It usually eats up its nidus; and, in consequence, one attack confers immunity for the future. But such is not always the case. Ague is an exception to the general rule, and so also apparently is influenza. Is influenza therefore a variety of ague? This peculiarity of ague is thus accounted for by Dr. MacLaggan. "Relapsing fever," he says, "is the only one of the contagious fevers which has no local lesion, and whose parasite, therefore, has no localized nidus. It finds all that it requires in the blood. Now, it is evident that a permanent impression cannot be made on an ever-changing fluid like the blood as it can on a formed and stable organ or tissue; and it is because such an impression cannot be made that one attack of relapsing fever confers no immunity from a second." In one respect I would, in all the humbleness of ignorance, go farther still, and say that, from painful personal experience, I gather that every attack of relapsing fever renders a man more liable to contract another attack. How this is to be scientifically accounted for I do not know. Though I did entertain a dim idea that tissue also was ever-changing, doubtless the theory as to the ever-changing character of the blood is perfectly correct, and sufficiently accounts for the unhappy peculiarity of ague alluded to. Ague confers no immunity because it finds its nidus in the blood; then, as influenza confers no immunity, we may reasonably suppose that it also finds its nidus—all that it requires—in the blood. But we are told that it attacks the nerve centres. These things are exceedingly puzzling to the lay mind.

Without the slightest disrespect to the eminent and self-sacrificing men who devote laborious lives to biological research, it must be admitted that the ignorance of human nature in respect to most of the maladies that plague it, and their remedies, is most profound. During all these years medicine has scarcely advanced beyond the initial stage of cataloguing and classifying observations. Is our under-

standing of the nature, *rationale*, and phenomena of ague and quinine (for example), and their interaction, sufficiently firm to form any foundation for an accurate scientific method of treatment to be adopted toward that disease and that remedy, or toward any other analogous disease and means of cure? Ague has many peculiarities besides those already mentioned. It is generally supposed to be confined to low-lying, marshy, miasmatic localities. But the supposition is erroneous; for varieties are met with at some elevation above the sea, and in districts fairly dry. It would appear to be a product of the earth rather than of the air; for it may remain dormant in the ground for ages, and be brought into a condition of unpleasant activity by disturbance of the soil. Many wild tracts of country, where chills-and-fever were absolutely unknown, become fever-smitten upon cultivation. The disease follows the furrows of the plough. Doubtless it is on this fact that the popular belief in the vegetable character of "fever seed" is founded: a superstition which very possibly may rest upon the truth. If so may not the difference in respect of ability and inability to grant immunity from further attack, between ague or influenza, and specific fevers generally, be satisfactorily accounted for by the different action produced by animal and vegetable organisms upon animal bodies? Ague also remains dormant in the human body, and regurgitates after long intervals and under circumstances which render fresh infection impossible.

Quinine cures ague, or at least attacks of ague, as a rule, that is certain: Also it produces ague, or at any rate all the appearances, symptoms, and effects of ague, especially of that ill-defined but most intractable kind known as "dumb ague" in the United States. In the case of a man who has taken large quantities of quinine to combat frequent attacks of chills-and-fever, it is, I believe, beyond the power of the most talented physician to discover whether he is suffering from the disease or the remedy: whether, in fact, he has the ague or the quinine. And how does quinine act? What is its therapeutic action? Is it of a secondary character? By acting on the body or system generally, it may produce in a body susceptible to ague a condition similar to that of a

body naturally impervious to ague. It may produce on an infected body a condition unfavorable to the development of microbes, or it may give an impetus to the forces of nature sufficient to enable her to expel those microbes. Or the action may be direct: the particles of quinine may be actively hostile to ague parasites, may enter into immediate deadly combat with them, and destroy them. The results in either case would be the same; but the physiological or pathological action of the drug would be entirely different. On the first hypothesis all curative results would be obtained by a quantity of quinine sufficient to saturate the system, quite independently of what that quantity might be.

One person may require 40, or 60, or 80 grains to produce any disagreeable sensation; in another 10, or 15, or 20 grains will produce singing in the ears, deafness, headache, and so on. Is it sufficient to be cinchonized in order to obtain the full benefit of quinine? On the other theory a definite amount of quinine would be requisite in order to kill a definite number of microbes, just as an appropriate quantity of arsenic would be necessary to destroy a given number of men. If 100 grains of quinine represent the smallest force capable of subduing the infesting army of microbes, the absorption of 50 grains will be absolutely useless, even though the system is thoroughly saturated and cinchonized with that quantity. This theory, I venture to think, best represents the true physiological action of the famous Jesuit bark. Personal experience and observation, at any rate, lead me to believe that ague can always be cured by large quantities of quinine, but cannot be cured by means of quinine in cases that are unable to endure large and frequently repeated doses of that drug; and if cinchona bark and willow bark have much in common, the same fact is probably true in respect to salicin. This, it may be said, is a question for doctors to decide. I grant it; but then let them decide, and communicate their decision. Dr. MacLaggan asserts that it is absolutely certain that quinine cures ague by direct slaughter of ague microbes. Is the proof so positive? If so, what grounds are there for believing that 30 grains of salicin will kill all the influenza microbes we can imbibe in a day? and, if 30 grains represent the smallest dose lethal to microbes, and I am unable to support

that quantity, is there any use in my taking salicin at all? Quinine sometimes produces permanent deafness, and salicin may have the same or some analogous effect. Such agencies are not to be trifled with. When we are all—men, women, and children; human beings of every degree of nature, constitution, idiosyncrasy, and physical and nervous strength—recommended, on high authority, to introduce 30 grains of salicin every day into our bodies for an indefinite period, it is natural and right that the method and action exhibited by that and similar substances should be expounded to us.

To return to the germ: It must, we are told, find its appropriate nidus in order to create disease. Very good; but what help is that to us? How does it account for the eccentric periodicity of those diseases? Is the germ always with us and the nidus generally absent? Or is the nidus ever ready to receive a usually absent germ? Or are they both always present—the germ in the air, the nidus in our bodies? and is some other "factor" necessary to bring them together and cause an explosion into life? And, if so, what is it? Is potential resolved into actual disease by some subtle change in the condition of germ, or of nidus; or by a synchronous modification in the condition of both? Ought we to set to work to combat influenza by sterilizing the air? and is there any danger of destroying useful qualities in the atmosphere in the attempt? Or shall we, on the other hand, proceed by sterilizing ourselves? and, if so, is it certain that the germ nidus does not subserve some useful purpose in us? If not, then what on earth is it for? Are germs invariably malignant? or, following all natural analogy, are not some of them benign? May we not unconsciously exercise a demoralizing influence upon microbes of naturally unimpeachable character, and, by disease with which they have nothing to do, call out qualities and quantities usually dormant in them? Is it reduced to demonstration that the bacillus is the cause and not the consequence of disease? Are not our own morbid bodily conditions the foster-mother of the germ? Is it certain that they do not originate in us, that disease is not a condition precedent of their hostility, that they are not always residing in us and perfectly harmless—perhaps beneficial—until stirred into unusual

conditions, numbers, and activity by circumstances over which they have no control?

By inoculation it is possible to develop in the lower animals human diseases known to be due to the presence of minute organisms; and those animals never spontaneously develop the disease, though, on the theory that its germs are in the air, they must be continually coming in contact with them. Which is the more probable: that capacity on the part of the human body to imbibe germs with comparative impunity has, for some unknown reason, deteriorated; or that existing species of germs have become more numerous and more active, or that new species of germs have come into existence to plague us? It would appear likely that man, rather than the minute organism, is to blame for the increased sensibility of the human body to the action of germs. In spite of vastly improved sanitation, in spite of great advances in medical and bacteriological knowledge, two classes of disease become year by year more prevalent among us. More and more we suffer from diseases attributed to the action of living organisms within us, and from nervous disorders of various kinds. Is it possible that any connection of cause and effect exists between man's nervous condition and his susceptibility to germs? These and similar questions are agitating the public mind.

We are dissatisfied with our own ignorance, and astonished that in this scientific and humanitarian age such ignorance should exist. What are we advised concerning the present epidemic? To trust to the doctor and keep our feet dry. The Board of Health launches a long and platitudinous document upon a public that does not know whether it is intended to be taken seriously or as a cumbrous joke. We are informed that the human body is less liable to contract diseases of an infectious or contagious character if it is properly warmed, clothed, housed, exercised, cleaned, and nourished, than if opposite conditions prevail. I venture to think that we were all perfectly aware of that self-evident fact before. We have been reminded of an experienced physician of former days, who lived and labored through a terrible epidemic in London and attributed his immunity to the habit of drinking his favorite liquor, sack, "to

cheerfulness" every night (a poetic way, I presume, of describing the initial stage of intoxication); and we are recommended by a celebrated physician of the present day to consume the bark of a certain tree. But whether there is any special virtue in sherry over other vehicles of alcohol, or whether willow-bark possesses any superiority over other barks or drugs, is, I submit, in the absence of voluminous evidence, a question absolutely impossible to determine.

What does all the advice given to us amount to?

Why, that we should, as far as possible, observe the ordinary rules of health, rely upon the common sense and careful guidance of a physician—which, fortunately, we can safely do—and shut our eyes and open our mouths, and take our salicin, or quinine, or something else, or nothing at all, according as the idiosyncrasy, preconceived opinion, or personal experience, of our physician may suggest. In view of the gravity of the situation, this condition of things is by no means satisfactory. We—the general public—know nothing at all about the present plague, and are inclined to think that nobody else knows anything at all about it either—an opinion which Dr. MacLaggan's article in the *Nineteenth Century* goes far to sustain. This universal medical agnosticism is disquieting. We want a large and searching inquiry into effects, and we desire a thorough and scientific investigation into cause.

"The fact cannot be too strongly stated, or too persistently pressed home," Dr. MacLaggan writes, "that what knowledge we do possess of the nature of the poisons which give rise to infectious and contagious diseases has been derived—not from a study of the poisons themselves, but—from a study of the natural history of the diseases to which they give rise." There is no occasion to state the fact strongly or to press it home upon our understanding. We are very well aware of it indeed. Until cause is discovered, the deductive method, reasoning down to cause by observation and analysis of effect, is the only possible means of scientific research. But when cause is discovered, and found to be a living organism multiplying in any body that accommodates it with a suitable nidus or with a nidus in a suitable condition, the advantage of dealing with cause rather than with effect im-

presses itself strongly upon the public mind. Crucial inquiry into the nature of cause is wanted in order that cause may be dealt with.

Surely the most rational and scientific method of treatment of disease must consist in dealing with cause rather than with effect. Even if that be disputed, no one will deny that in the knowledge and appropriate treatment of cause the only rational and scientific method of prevention exists. Such an inquiry may be difficult of attainment in this country. National prejudice may stand in the way. The funds available for such a purpose are utterly inadequate; and the medical profession in general cannot be expected to spend much time in laborious research. As a rule, medical men have to make their own living; and, moreover, the time that might be spent in the laboratory is perforce expended in administering to the immediate necessities of suffering human nature. In a highly scientific and exceed-

ingly wealthy community such difficulties ought to be overcome. Be that as it may. What is required with far more immediate urgency is the careful collection, classification, and examination of facts gathered over a widely extended area, in order that a rational mode of treatment of effects may be founded upon a thorough knowledge of the natural history of the disease. That course assuredly lies well within our opportunities and means. The end desired cannot be attained by the interchange of personal opinions through Review articles or in the columns of the Newspaper Press. It can only be accomplished through examination into the whole subject by a select body of competent men. A Royal Commission would appear to constitute the most suitable means; and if Her Majesty's Ministers would recommend the appointment of such a body the British public would not grudge the money necessary to carrying out the work.—*National Review*.

A GOLDEN HOUR.

BY WILLIAM WATSON.

A BECKONING spirit of gladness seemed afloat,
That lightly danced in laughing air before us :
The earth was all in tune, and you a note
Of Nature's happy chorus.

'Twas like a vernal morn, yet overhead
The leafless boughs across the lane were knitting :
The ghost of some forgotten Spring, we said,
O'er Winter's world comes flitting.

Or was it Spring herself, that, gone astray,
Beyond the alien frontier chose to tarry ?
Or but some bold outrider of the May,
Some April-emissary ?

The apparition faded on the air,
Capricious and incalculable comer.—
Wilt thou too pass, and leave my chill days bare,
And fall'n my phantom Summer ?

—Spectator

THE ELECTRICAL CURE OF CANCER.

BY MRS. EMILY FAITHFULL.

PERSONAL experience has a value of its own, and I believe this paper is more likely to be useful if I preface it by a bit of autobiography.

In the year 1889, and again in 1890, I had the misfortune to require treatment for epithelial cancer. The hopeful medical prognostics which followed the first knife operation had a less assured ring after my relapse, and it was while facing the terrors of my situation that, by the merest chance, I heard vaguely of an untried means of cure.

No puffing advertisements trumpeted the remedy, and with considerable difficulty I followed up my slight clew, and discovered, to my entire surprise, that galvanic currents were affirmed to be not only, as I already knew, a sedative and tonic medicine, but also a surgical instrument more effective than steel. I read carefully the scientific grounds on which this claim was based, as fully and temperately set forth by one of its latest exponents, and to my unlearned mind they seemed eminently reasonable.

But I was well again, and hoped never to find my quest of any service. Suddenly, with hardly a day's warning, I learned that if I cared to prolong life I must resort again, and at once, to the old treatment. I say "prolong," for trustworthy medical advisers now spoke only of respite which the knife would bring, though deprecating with varying urgency as dangerous or futile any trial of electric batteries. I might have hesitated but for two considerations. A fresh experiment safely carried through would give me hope, the best of boons, and the simplicity of the process would preserve others from suspense and alarm, just then specially perilous. So, backed only by two professional opinions against a chorus of warnings, I took the leap. The result so far has been absolutely satisfactory; but it is not on the individual result that I desire to dwell. The months that have yet elapsed afford no warranty, and at best a single case of success goes for little.

The indirect outcome of my venture was, however, a second revelation. I naturally wanted every possible confirma-

tion of the belief which had become my sheet anchor, and I found by diligent search that it existed embodied in works written by many hands in many countries and through many years, all maintaining that in certain diseases electricity did better work than any knife could do. This corroborative testimony, not easily accessible to ordinary readers, I collected for my own encouragement; but as it grew under my hand, I began to think how helpful it would have proved to me when forced to an instant and difficult decision, and the impulse to make it known to others in like straits has been quickened by piteous letters of inquiry from sufferers who have heard of my past trouble and present well-being, and also by the following facts, increasingly borne in on my mind:

1. The ignorance of the "patient" world concerning the very existence of electrical surgery.
2. The admitted disadvantages attending certain knife operations.
3. The benefits which, according to the authors I consulted, follow electricity applied to certain growths.

As touching the first head, this general ignorance is easily explained. There are only certain ways in which a medical man who respects the rules of professional etiquette can make known his observations and results. He may publish a book or monograph. He may read a paper before a medical audience, or he may send written communications to one or other of the medical publications. For the production of a book much material and leisure may be required, often involving for a busy man long delay. Articles sent to the medical papers may or may not obtain admission. If they do appear, they by no means necessarily attract the notice even of medical men, and scarcely ever meet the eye of general readers, who, when well, take little interest in such literature, and when ill dread the alarming ideas it suggests. Nor does chance conversation often enlighten cancer patients, who mostly shun all reference to their maladies. Consequently their only likely sources of information are their doctors.

But doctors, as a rule, do not offer alternatives. They recommend a certain course with more or less insistency, and the patient either meekly acquiesces or seeks further advice, which leaves him, should the oracles differ, wholly at sea. Probably many doctors might be consulted before any would be found even mentioning electricity as a substitute for the surgeon's knife. In one of the leading medical periodicals there appeared, during the years 1889, 1890, and up to May, 1891, four long papers on cancer, three dealing with knife operations, the fourth reporting on the action of caustics. Only one of these papers, the Morton Lecture delivered by the late Professor John Marshall, contains any allusion to electrical treatment, and while he allowed that it may "come to be specially useful," yet this commendation was qualified by the opinion that it will perhaps "ultimately be regarded as inferior to the knife."

It is hardly strange that leading surgeons should have a bias in favor of the weapon they wield with such consummate skill, and, moreover, their class conservatism (often a safeguard for the sick) creates in them, as a rule, a strong distrust of novel methods. With some notable exceptions, they like electricity little for simple tumors, and still less for cancer; and though unable to bring against it, in orthodox and skilful hands, any grave indictment, except an alleged degree of risk not proven by statistics, they are yet for the most part slow to believe in reported cures, and when these are undeniable they shift their ground and become sceptical as to the original malignancy of the disease. Now and again, indeed, some one may go so far as to admit that, if worth anything, the process will make its way in time. True enough, no doubt, for medical recruits are steadily coming in to join the band of believers contending against heavy odds; but in the mean while, alas for the poor men and women who, living now and not a few years hence, linger in torture, or die in the prime of life! As things are in these days, the doctor probably issues his terrible decree, and the unhappy patient submits, to what he blindly believes the only possible escape from sure and speedy death.

Yet to pass to my second head—i.e., the disadvantages of knife treatment—the dread it inspires is so great that many

sufferers conceal their disease till their condition has become desperate, or, having once undergone it, resort afterward to any quackery rather than again face the ordeal. For the more courageous, knife operations, even if successful, may leave lasting disablement or disfigurement, and, where cancer is concerned, if we accept the evidence of some of the first surgeons, the chances are much smaller than their patients guess that (except in very early and favorable cases) such measures will greatly lengthen life, while by the same showing they sometimes shorten it.

As to the better hope afforded by the electric current, the authors I am about to quote must bear their own witness, and if it be objected that this is an *ex parte* statement, the reply is obvious. The merits of the knife, despite its acknowledged limitations, are upheld, sometimes vehemently, by a great majority of the profession, and its triumphs fill a large portion of those medical organs which only at rare intervals reserve a corner for electricity.

There is another objection to which my quotations may seem open, based on the doctrine governing much medical procedure, that patients are not the best judges of their own interests. But even if it be admitted that the interests of patients are never subordinated to those of the profession, still in one way or another choice of treatment always must practically rest with patients. They or their friends, in selecting a physician, usually decide as a natural sequence for the course he recommends, but since the selection depends mostly on public fame or private praise, and since men of equal mark advise widely different steps, the treatment, an unknown factor, is really chosen at hazard.

Surely it seems reasonable that, instead of merely exercising an unreliable judgment as to the respective excellencies of Dr. A. or B., they should—the nature of their complaint once ascertained—have some clear knowledge, such as in surgical cases they obviously can have, of the *pros* and *cons* attending all legitimate kinds of treatment. The properties of drugs, the rules of regimen and hygiene, can doubtless only be mastered by long study and much experience; but no surgeon, however able, skilful, or impartial, can realize as well as the patient himself how far the

loss of a limb will embitter his existence, or whether present risk, if risk there be, is worth braving for better future possibilities.

"More than thirty years ago I had put galvanism to the test, and had gathered in various ways evidence of its potency both in destroying and repairing tissues," * said a great English surgeon in 1888, when testifying from his own experience to its "wonderful influence" in one special form of disease, and his emphatic declaration, "We are face to face with an important revival," † was echoed by a Scotch contemporary, "we are at the beginning of a great change in the treatment of many diseases by electricity in some form." ‡

"Electricity," observes a Heidelberg professor about the same time, "has proved in so many different cases a powerful and unique means of cure, that it is the duty of every physician worthy of the name to devote some attention to this agent;" § and then he goes on to relate how in Germany for a long time past, and more recently in America, medical and surgical electricity has been studied and practised with an interest and zeal it has never aroused in England. Yet even in Germany a fellow-professor had seen cause to wish "dass die Elektrolyse auch weiter verbreitet werden möge um durch ihre wohlthätige Wirkung den Zustand von so manchen trostlosen Kranken zu erleichtern." ||

On the other hand, there had been, many years before, converts here and there in England who had the courage of their opinions. Quite early in the century we come upon an enthusiastic tribute to electricity :

"As a medical preparation there is not yet discovered in nature any which possesses so much power. . . . It has been applied in complaints where all other means have been resorted to without success, even to the preventing the operation of amputation or other operations of excision which had been sug-

gested as the last and only means of saving life, by men who are, notwithstanding, justly called eminent in their profession." *

In 1849, Golding Bird, then Professor of Materia Medica at Guy's Hospital, when lecturing at the Royal College of Physicians, put forward a more sober claim : "Conscientiously convinced that the agent in question is a no less energetic than valuable remedy in the treatment of disease, I feel most anxious to press its employment upon the practical physician, and to urge him to have recourse to it as a rational but fallible remedy, and" (a needful injunction) "not to regard it as one capable of effecting impossibilities." †

About twenty years later, Dr. Hughes Bennett coupled his testimony to its destructive and stimulating efficacy with another warning as to the profound knowledge not only of electricity itself, but of anatomy, physiology, and diagnosis, which "should be possessed by him who undertakes the difficult task of employing so powerful although manageable an agent for the relief and cure of diseases;" ‡ and Dr. Russell Reynolds struck the same note in his University College lectures on its purely medicinal applications : "Electricity is one of the most powerful agents that you can employ in the treatment of disease, but it is useful, useless, or mischievous according to the manner in which it is applied." §

In such cautions, reiterated again and again in various forms by the champions of electricity, we find the explanation of the otherwise inexplicable fact that a remedy declared to be of such high value should, so far as surgical uses are concerned, be so little regarded by the profession at large.

"The danger lies, not in the method, but with the operator," || and the paucity of skilled operators has apparently been, at any rate till very lately, both the cause and effect of its disfavor.

In an article on "Medical Electricity,"

* Sir Spencer Wells, *Brit Med. Journal*, May 12, 1888, p. 995.

† *Braithwaite's Retrospect of Medicine*, vol. 98, p. 327.

‡ Dr. Thomas Keith, *Braithwaite's Retrospect of Medicine*, vol. 100, p. 405.

§ Erb's "Electro-Therapeutics," translated by Dr. de Watteville, preface, p. 5.

|| "Die Elektrolyse in der Chirurgie," by Franz Groh, Professor of Clinical Surgery Oltmutz.

* Essay on the "Medical Application of Electricity," by James Price, surgeon, p. 13.

† Lectures on "Electricity and Galvanism," by Golding Bird, p. 123.

‡ "Clinical Lectures," by Dr. Hughes Bennett, p. 330-1.

§ Lectures on the "Clinical Uses of Electricity," by Dr. Russell Reynolds, p. 101.

|| Sir Spencer Wells, *Braithwaite's Retrospect of Medicine*, vol. 98, p. 397.

which appeared in the *Practitioner* many years ago, there occurs this passage :

"There are men, some of them even highly placed in the profession, especially in England, who pertinaciously refuse to acknowledge any real worth in the treatment. The especial incredulity of English medical men may be readily accounted for by two facts. In the first place, medico-electric quacks have been especially rampant and exceptionally dishonest and incapable in this country ; and secondly, the ignorance of the English medical profession concerning the elements of electrical science was something profound and amazing."

To quote another writer :

"The differences of opinion about the therapeutic value of electricity are readily to be understood if we bear in mind that the mode in which electricity is applied has an all-important bearing on the results. . . . In ninety-nine cases out of a hundred empirical galvanists, being unacquainted with the physiological effects of electricity . . . have brought the remedy into undeserved contempt." *

And the Electro-Therapist to the New York State Women's Hospital tells us :

"Electricity, although the legitimate property of the educated physician alone, draws to it, more than any other therapeutic means, the folly, ignorance, and cupidity of the land. . . . In all probability, its future status is secured, for it rests on foundations too broad to be easily overthrown. But it has grown, and is still growing, in spite of the opposition of many who would relegate its use to ignorant attendants, or to the patients themselves. . . . It is only within the last ten or twelve years that . . . any approach to systematic investigation has been attempted, and an agent powerful for good, but capable of vast injury, given a place in the armamentarium of the profession. . . . Skill and the requisite knowledge in this special branch come only by close observation, hard study, and much experience." †

This last sentence throws light on the "curious fact" recorded by Dr. W. Playfair, "that while every one who has fairly, patiently, and impartially tried this method of treatment has been able to say that he believes it has at least some power for good in it, and is well worthy of further study, not one single opponent (and its opponents are both numerous and influential) seems to have taken the trouble to put it to the test of clinical experience, but has founded his objections on mere

theory, and on second-hand evidence as to its possible dangers." *

That the test is not an altogether simple one is very evident :

"Electricity, despite its value . . . as an electrolytic destroyer of diseased tissues . . . and as the most manageable cauterizing agent . . . is superseded for these purposes by less efficient means. The expense of electrical apparatus, and the want of knowledge concerning it, are not the chief reasons for this neglect. The explanation is to be found in the extreme inconvenience attendant upon the methods of generating electricity at present employed." †

"I think that nothing but the want of information as to the choice and management of instruments can explain the little headway that the practice of electricity has made with the mass of the profession, too much occupied in their daily work to spare time to study the uses of this agent in the hands of the very few physicians in this country who have given attention to the subject." ‡

Certainly "the uses of this agent" would appear to demand much study. An American physician thus summarizes a few of them : "The nerves, muscles, and many of the secretions can be more surely and more uniformly called into their natural action by means of electricity than by any other known agent, and the degree and kind of the effect is widely different, according to the form, quantity, or intensity of the electricity employed, and that again is modified as widely according to the methods of administering the dose." §

"Simple chemical cauterization," says Dr. George Apostoli in a paper read before the British Medical Association at Dublin in 1887, "is not the only matter we have to take account of. . . . The electrical current . . . in its course through the tissues acts prolongedly and profoundly on every molecule, and thus causes ulterior changes . . . which may well astonish both by their extent, safety, and certainty." || And Dr. Massey, of Philadelphia, has lately described "two essentially different means of rendering

* "On the Value of Electricity in Gynecology," by Dr. W. S. Playfair (*Lancet*, July 21, 1888), p. 103.

† "Electricity in Medical and Surgical Practice," by Professor A. Ogston (*Lancet*, April 3, 1887, p. 867).

‡ "Handbook of Medical and Surgical Electricity," by Dr. H. Tibbitts, p. 2.

§ "Medical Electricity," by Alfred Garrett, M.D., preface, p. 12.

|| "Gynecological Electro-Therapeutics," by Dr. H. Bigelow, p. 49.

* "Treatise on Medical Electricity," by Dr. J. Althaus, p. 1.

† "Lectures on Electricity," by A. D. Rockwell, p. 1, 2, 3, 23.

electrical applications useful; . . . the one consisting of a therapeutic use of faradic and weak galvanic currents . . . the other a surgical disintegration of diseased tissues and neoplasms by strong but accurately measured currents."*

Such, we are told, are the effects. As to precisely how they are produced one of the surgeons of St. Bartholomew's observes: "So long as the exact chemical composition of the tissues of the human body is unknown, we must be content to remain in ignorance of the exact chemical change which takes place when they are electrolyzed . . . and to gauge the efficacy of the process by the results which it yields. . . . It is to these results, therefore, that I appeal as a testimony of the value of the procedure."†

The adherents of electrical treatment are the first to allow how much remains unlearned, though one of them cites as among its healthiest signs "the gradual development; . . . every step enabling the operator to employ it with greater safety and efficacy."‡ And Sir George Macleod, no enthusiast, prophesies "that, with the aid of improved batteries and the modern accumulator, better work will be done in the near future."§

But it is time to pass from general evidence concerning electricity to the more special inquiry as to its influence on various forms of tumor. It will be simplest to take them separately, beginning with cancer, the most dreaded and deadly.

More than a century ago, Dr. Duncan, of Edinburgh, proposed the use of electricity in cancer; and Mr. Cavallo, who practised about the same period, mentions a case "where the excruciating pains of cancer were mitigated by the electric aura."|| But if at this remote time good really resulted, it made little impression on the professional mind, for in 1849 Alfred Smee in his "Electro Biology" observes, *à propos* of cancer: "It is doubtful whether the application of electricity can favor or prevent its growth. I have

occasionally met with females who declare that cancerous swellings have been dispersed by its agency, though I myself am inclined to believe that the party who named the malady erred in judgment."*

In the same year, however, under the auspices of Mr. Hinton and Mr. Bransby Cooper, electricity was tried in an advanced case of cancer with some success; and in 1854 Sir S. Wells saw a case, "with Dr. Lawrence, of Connaught Square, in which we decided, on consultation, to adopt this method, and Dr. Lawrence carried it out most effectually."†

We are told, too, of an electrolytic institution, "founded at Moscow, under the direction of several medical men, who report to have cured sixteen cases of cancer without the use of the knife or the tying of an artery."‡

Up to this date the apparatus seems to have consisted of a piece of zinc, which, when connected with an electro-galvanic machine, became a cauterizing agent; but a little later, needles were employed, and the process ("electrolysis," as it now came to be called) aimed at far more than the mere removal of existing growths.

Dr. Althaus sets forth at length its newly revealed powers:

"I believe that the electrolytic method will be found generally useful, not merely by removing the present tumors, but also by so modifying the nutrition of the parts concerned that no relapse is likely to take place there."§

"One point appears already settled in this matter, and that is, that there is no better means for relieving the pain of cancer than electrolysis. . . . Observers are quite unanimous in this particular. . . . Neffel says that electrolysis performed in a certain manner . . . acts not only on the neoplasma, but also on the surrounding parts, which, although apparently healthy, are nevertheless already infected. . . . The electrolytic effects spread wherever portions of the current travel. . . . The histological researches of Kuhne, Engel, Mann, Goluben, and others have shown that electricity has a powerful effect on the protoplasm. . . . The protoplasm of the cancerous cells appears to be so altered by electrolysis that they lose their vital properties. Cancerous cells are more easily

* "Electricity in the Diseases of Women," by G. B. Massey, M.D., p. 2.

† "Treatment by Electrolysis," by W. Bruce Clarke, *Practitioner*, vol. 37, 1886, p. 187.

‡ Dr. Aveling, *Brit. Med. Journal*, May 12, 1888, p. 1013.

§ *Lancet*, August 11, 1888, p. 253.

|| "Observations on Medical Electricity," by Francis Lowndes, pp. 44-46.

* "Electro-Biology," p. 128.

† "Cancer Cures and Cancer Curers," by Sir S. Wells, p. 30.

‡ "Application and Effect of Electricity," by R. M. Lawrence, M.D., p. 97.

§ Paper read before Medical Society of London, Jan. 1867, on "The Electrolytic Treatment of Tumors," by Dr. Althaus, p. 23.

destroyed by the galvanic current than healthy cells, as is seen under the microscope. . . . The general condition of the patient is improved by electrolysis in a remarkable manner, even in bad cases. The lancinating pains disappear; appetite, digestion, and sleep return. . . . Professor Massey, of Philadelphia, has recorded a case in which a cancer . . . had been excised. A relapse took place, and amputation . . . was thought of. Electrolysis, however, was used. . . . The tumor entirely disappeared, and after two years no relapse had taken place."

The same author also gives in detail the case of a member of the American Congress, who, after eminent surgeons had declared his disease cancerous, underwent two knife operations, and when "further surgical procedures appeared inadmissible," was treated by electricity.

"The patient, who had been very feeble, anæmic, and cachectic, became stronger from day to day, and the tumor gradually began to shrink. Two months after the first application it had almost entirely disappeared, and three months after no trace of it was left. The general health of the patient had improved *pari passu*, and was, when last seen, excellent. . . . He died three years afterward of another complaint, no relapse having taken place." *

About the same time, in a report made to the Illinois State Medical Society, we are informed that "growths which exhibit the appearance of malignancy, or which stand upon the disputed boundary between scrofula and cancer, are induced to disappear speedily . . . by an electrolytic process of very short duration." †

Dr. Vivian Poore mentions the pain-soothing power of electrolysis when applied to cancerous tumors as the experience "of most surgeons who have given this method a trial," ‡ and in quick succession, with differing degrees of confidence, follows the testimony of other independent workers.

"I have electrolyzed a number of cancerous breasts. . . . The severe pain has in all instances been relieved, and the rapid development of the disease, in the greater number of instances, arrested. . . . The general health has been improved, and, with better sleep and increased appetite, hope has returned to the patient." §

* "Treatise on Medical Electricity," by Dr. J. Althaus, pp. 696-704.

† "Galvano-Therapeutics," by D. Prince, M.D., 1873, p. 43.

‡ "Text-Book of Electricity in Medicine and Surgery," by G. Vivian Poore, M.D., 1876, p. 242.

§ "Outlines of Medical and Surgical Electricity," by Hugh Campbell, M.D., p. 83.

"I do not know any circumstances in which I should be inclined to treat by electrolysis a malignant tumor otherwise removable. . . . Nevertheless, under certain conditions, electrolysis may prove beneficial in cancer. As has been remarked by various observers, it possesses a wonderful power of relieving the pain which often attends this disease. . . .

I record the fact because it consists with my own experience and the observations of others. Moreover, in using it for this purpose in hopeless cases, one may also have some expectation of retarding the disease—I can hardly say of curing it. My colleague, Mr. Annandale, has just made trial of it in a . . . sarcoma of the thigh, in which amputation was the only possible resource. . . . After one application of the needles, not only has the pain been relieved, but the tumor has diminished." *

"Whether or not the voltaic current exerts a special destructive influence upon disease germs, it seems certainly proved that there is a less frequent return of cancerous growths removed by electrolysis than by the ordinary operative procedures or by caustics. . . . The treatment of malignant tumors by electrolysis is yet *sub judice*, but the evidence in its favor has recently accumulated." †

"I am firmly convinced that the removal of a malignant growth by electrolysis does lessen the liability to a recurrence of the disease. That in any case in which operative interference is necessary, electrolysis is the preferable method; that in certain cases where interference by the knife is not to be thought of, electrolysis is advisable. . . . I have had many cases . . . which, having been previously operated upon by the knife, recurred in less than three months after the operation; but the secondary, and in some instances tertiary, growths having been removed by electrolysis, the patients recovered and remained free from any tendency toward recurrence. Some of these operations are of several years' standing, and speak for themselves as to their value. They represent almost every variety of malignant disease. . . . That I have failed in preventing recurrence is true, but in each case of failure either the whole of the diseased part could not be removed, or else the system was so impregnated with the disease that the operation was undertaken with the view of prolonging the patient's life rather than with a hope of the disease not reappearing." ‡

"Electrolysis appears to have a sedative effect on the pains of cancer, and deserves a more extensive trial in this respect than it hitherto has had." §

And while English and American surgeons and physicians were recording their

* "Lectures on Electrolysis," by John Duncan, *Brit. Med. Journal*, June 10, 1876, p. 716.

† "Handbook of Medical and Surgical Electricity," by Dr. H. Tibbits, pp. 224-6.

‡ "Electricity in Surgery," by John Butler, M.D., 1882, p. 47.

§ "Practical Introduction to Medical Electricity," by Dr. de Watteville, 1884, p. 202.

conclusions, Professor Groh, of Olmutz, treating eighteen cases of epithelial cancer by electrolysis, had cured thirteen, and of the remainder two had improved; in two there were no results, while one ended fatally. Professor Schwauda, of Vienna, electrolyzing a dying cancer patient whose "pain spasms and sleeplessness were so severe as to defy all the usual means for the relief of these symptoms," had so relieved her that "the use of the current was continued up to the time of her death, and was the only thing which did any good;"* and Professor Semmola, of the University of Naples, proved the beneficial influence of a week long-continued current on malignant tumors in six cases, in five of which "amputation of the diseased part had been recommended by experienced surgeons, and the sixth was a case of recurrence."†

A curious bit of evidence as to the curative virtues of electricity in its most intense and perilous form was contributed by Dr. Allison in a letter to the *Morning Post*, relating how a patient of his, about to undergo an operation for cancer of the lip, was, while out ploughing, struck by lightning. His team was killed, and he himself carried home insensible, but soon afterward the cancer lessened; in a few months every trace of it disappeared, and for years he remained well.‡

To continue the chronicle up to the present time:

"It is only in changing the action of the part and destroying the cells that any satisfactory issue can be anticipated. More and more it is becoming clear that at first cancer is local, and if it be then and there dispersed by this beautiful and life-giving process, there is far more hope of what practically amounts to a cure than by any other mode of treatment."§

"Electrolysis is no doubt sometimes very useful in cancer . . . not only to destroy portions of the growth, and thus check the advance of the disease, but noticeably to diminish the pain."||

"The effects produced by the action of the electricity consist in a cessation of growth, gradual disappearance of pain . . . followed by improved nutrition and a better state of

the general health. . . . So far, cases able to bear the full strength required have shown no sign of recurrence. . . . The interrupted voltaic current apparently causes atrophy of the morbid cells from pole to pole in the path of the current if the details of the application are efficiently carried out."*

"Besides local destructive agency there is a possibility that currents of from 50 to 150 milli ampères may exert a toxic influence upon cancerous tissue at some distance beyond the point of electrode contact owing to its relatively lower vitality."†

So much for the treatment of cancer by electricity. It would be easy to multiply quotations till they became wearisome. As regards those selected, it will be seen that they are by no means all in accord either as to the certainty and range of its power or its best mode of application, but the unanimous assertion that it *has* power is all the more striking by reason of these very discrepancies.

When, however, we come to fibroid tumors, we find that though "the galvanic battery was used by Sir James Simpson forty years ago"‡ for the dispersion of one of these growths, a special form of electrolysis, introduced by Dr. G. Apolloni in 1882, is now generally adopted. Of it he himself predicts "that it will henceforth be admitted we have in electricity a most powerful means of safely treating fibroid tumors, and that it will in future be felt as a duty by the surgeon to make use of it before adopting other measures."§

Let us see how others regard the treatment he initiated. "The labors of Apolloni," says Sir Spencer Wells, "have expanded and given a definiteness to our knowledge of the special power of galvanic currents. . . . As to the permanence of cure, where cure there has been, one can only say that though five and a half years is but a short term to form estimates upon, when we are assured that during that time the return of symptoms or the necessity for further measures has been quite exceptional, it augurs well for the future, and the objection of the possibility of relapse

* "Treatise on Medical Electricity," by Dr. J. Althaus, p. 696-697.

† "The Electrolytic Treatment of Malignant Tumors," *Lancet*, Nov. 26, 1881, p. 921.

‡ *Brit. Med. Journal*, Dec. 27, 1879, p. 1052.

§ "Cancers and Simple Tumors dispersed by Electricity," by G. Edgelow, M.D., p. 4.

|| W. E. Steavenson, M.D., *Lancet*, Dec. 7, 1889, p. 1198.

* "Arrest of Growth in Four Cases of Cancer by a powerful interrupted Voltaic Current," by J. Inglis Parsons, M.D., *Brit. Med. Journal*, April 27, 1889; *Lancet*, Dec. 14, 1889, p. 1253.

† "Electricity in the Diseases of Women," by G. B. Massey, M.D., p. 212.

‡ Dr. Aveling, *Brit. Med. Journal*, May 12, 1888, p. 1013.

§ *Lancet*, Dec. 22, 1888, p. 1223.

becomes of little weight. . . . There are tumors so large that no prudent surgeon would meddle with them. Here, surely, is the occasion for the electrician to show his power. His method is a new resource for a desperate condition, and should be welcomed as such."*

Again we have the verdict of one whose success in knife operations for such tumors has been pronounced "phenomenal." Dr. Thomas Keith writes: "I have thrown . . . over all surgical operations for this new treatment, and the longer I follow it the more I am satisfied;" and elsewhere, "We have already, my son and I, in scarcely five months, applied electricity in strong accurately measured doses upward of 1200 times on considerably over a hundred patients, the majority in cases of fibroids."†

A Harvard professor tells us how, "Many years ago . . . when I argued that electricity, hygiene, and massage would do many things which the knife was called upon to do, I had not a sufficient array of facts to back my argument up, and I was somewhat mocked. But with the advance of years came riper experience . . . until it culminated in a personal association with Dr. Apostoli, a personal investigation of his cases reaching nearly 2500, and a personal witnessing for four hours at a time and three times a week of the large number of cases that came to his clinic in the Rue de Jour. . . . What I have seen Apostoli do . . . scores of observers all the world over are doing and repeating every week. . . . I do not yet know that it will dissipate the tumor. I have not seen such an instance, but I believe the time to be in the near future when we shall be able to do even this. I only claim now that it will . . . dissipate pain, improve nutrition, and diminish size without danger to life. Is there anything known to our science which can offer so much?"‡

The "scores of observers" is no mere figure of speech. In more than one London hospital, in several provincial and Scotch hospitals, Apostoli's method is

now employed. At New York, Chicago, Boston, Philadelphia, St. Louis, and Montreal "the treatment of fibroid tumors by the galvanic current has of late been . . . universally recognized by the profession."* Dr. Championnière, of the St. Louis Hospital, Paris, reports favorably,† and M. Delétang, of Nantes, stated at a meeting of the Académie de Médecine that he had treated ninety-seven women suffering from fibroma by electrolysis with excellent results.‡

Such are some of the attested successes to be set against failures cited by opponents, which may or may not have been due to imperfect instruments, clumsy manipulation, or mistaken diagnosis.

Turning now to scrofulous and enlarged glands, and goitre, we again discover our first advocates for electrical surgery in the dark ages of the science.

Dr. Percival, in his "Medical Commentaries," relates how by its means he "removed a number of hard tumors from the neck, where they had remained during three years, and resisted a variety of applications."§ And in Dr. Joseph Priestley's "History of Electricity" we read that "swellings in the face, neck, or other places, are oftentimes very much reduced by a few moderate discharges of the vial through the part; but these will frequently be found to yield to the drawing of strong sparks from the place without using the vial."||

Nous avons changé tout cela, but still there seems a certain significance in the belief which electricity, even in this crude form, was able to command. Between 1850 and 1880 Continental doctors were busy with their currents.

"Remak in his 'Galvano-Thérapie' mentions that he had succeeded in removing a number of swollen and painful lymphatic glands in the neck. . . . Meyer, by the use of strong and often interrupted faradic currents, had succeeded in removing or diminishing multiple indurated lymphatic tumors. . . . Choostek has treated in several instances strumous glands, many of long standing, with stable galvanic currents, and has often reduced them with wonderful rapidity, some-

* "Electrical Treatment of Uterine Diseases," by Sir Spencer Wells, *Braithwaite's Retrospect of Medicine*, vol. 98, p. 397.

† Dr. Thomas Keith, *Braithwaite's Retrospect of Medicine*, vol. 100, p. 405, and *Brit. Med. Journal*, Dec. 10, 1888.

‡ "Paper on Dr. Apostoli and his Work," by Professor H. Bigelow, *Lancet*, Dec. 22, 1888, p. 1222.

* "Electricity in the Diseases of Women," by G. B. Massey, M.D., p. 117.

† *Lancet*, Sept. 14, 1889, p. 571.

‡ *Brit. Med. Journal*, Dec. 22, 1889, p. 1412.

§ "Observations on Medical Electricity,"

by Francis Lowndes, p. 44.

|| "Essay on Electricity," by J. B. Beckett, p. 64.

times completely. . . . Seeger claims to have been equally successful in inflammatory glandular swellings. Omnium and Legros give similar instances of cure in connection with glandular tumors.*

More lately the Professor of Materia Medica in the Medical College of Philadelphia states: "Solid tumors, as goitre, enlarged and submaxillary glands . . . and similar growths have been repeatedly cured by electrolysis."†

From Edinburgh comes the record of six out of fourteen test cases of goitre absolutely secured by the same method.‡

A very few lines must suffice for one other form of tumor. In the *Lancet*, of March 20th, 1875, there is mention of forty cases of nævus electrolytically treated by Mr. Knott, of St. Mary's Hospital, and he dwells upon the certainty and safety of the process, the faintness of the cicatrix and the absence of all after-pain; while the surgeon to the Children's Hospital at Nottingham says: "I am induced to give the experience of about ten years' use of electrolysis in the treatment of nævi, because in my hands it has answered so well, and seems to possess advantages which none of the more commonly adapted methods of dealing with these growths can be said to have."§

I now lay down my pen. As regards the conflicting theories touching the action

of electricity on human tissues, and the comparative efficacy of weak or strong, interrupted or constant currents, it would be presumptuous to hazard an ignorant opinion, grounded only on one personal experience.

All I have aimed at doing is to collect and arrange the arguments and evidence of men of medical repute in our own and past times in favor of surgical electricity, and to present them fairly, omitting no word that modifies their meaning. Even this aim I have most imperfectly fulfilled, for I have only had means of access to a fraction of the American works on electrotherapeutics, and have perforce left unexplored a mass of foreign literature on the same subject, while time did not permit me to exhaust the mine of English medical periodicals. Probably this mine, however well worked, would not have produced a very abundant yield, for if it did there would hardly be, as I think there is, a *raison d'être* for this paper.

The little I have accomplished will have served its purpose well should it lead any deeply exercised about themselves or others to consult such authorities as are within their reach, and, if thereby satisfied that electricity deserves a trial, then, under the advice and at the hands of a master of the craft, to put its powers to the proof.—*Contemporary Review*.

THOUGHTS OF A HUMAN AUTOMATON.

BY HENRY BLANCHAMP.

"When shall we rest upon the thing itself,
Not on its semblance? Soul—too weak, for-
sooth,
To cope with fact—wants fiction every-
where!
Mine tires of falsehood—truth at any cost!"
Ferishtah's Fancies.

I AM an automaton—a puppet dangling on my distinctive wire, which Fate holds with an unrelaxing grip. I am not differ-

ent, nor do I feel differently, from my fellow-men, but my eyes refuse to blink away the truth, which is, that I am an automatic machine, a piece of clockwork wound up to go for an allotted time, smoothly or otherwise, as the efficiency of the machinery may determine. Freewill is a myth invented by man to satisfy his emotions, not his reason. I feel as if I were free, as if I were responsible for my thoughts and actions, just as a person under the influence of hypnotism believes he is free to do as he pleases. But he is not; nor am I. If it was once possible for a rational being to question this fact, the discoveries of Darwin must have set his doubts at rest.

The first outburst of fury and ridicule,

* "Electro-Therapeutics," by Erb, translated by Dr. de Watteville, pp. 678, 257, 259.

† "Medical Electricity," by Roberts Bartholow, 1881, p. 263.

‡ "Treatment of Goitre by Electrolysis," by J. Duncan, *Brit. Med. Journal*, Nov. 3, 1888.

§ "On the Treatment of Nævi by Electrolysis," by Lewis Marshall, *Braithwaite's Retrospect*, vol. xcix., p. 288.

not unmingled with fear, consequent upon the enunciation of the evolutionary theory, has long spent its force, and the current of reaction is shooting the earthen pot of religion and the iron pot of science down the stream of time in perilous proximity. The great dignitaries of the Church, fully alive to her danger, are endeavoring in divers ways to avert the inevitable catastrophe, and have set to work to buttress the tottering edifice of Christian dogma with the pillars of science, or rather they are engaged in plastering the walls with dynamite to prevent the building from being blown up. One of these ecclesiastical luminaries, fearing his Divinity may be accused of lagging behind the times, opines that He must have set an "original impress" on matter, whence creation was evolved through countless æons of development. An "original impress" doubtless sounds more dignified than the cosmogony laid down in Genesis, which exposes the Deity to Heine's irreverent taunt—"It is perfectly evident He must have created the world in six days—so much still remains to be done." Another luminary, on the other hand, less skilful in the art of wresting the weapon from the grasp of the adversary, contents himself with feeling aggrieved that his adored Deity should have been "defeated to a pure transparency;" while a third, rashly anticipating the time when the lion shall lie down with the lamb, has coupled the "Christian" with the "Agnostic." A fourth, belonging to the Conservative faith, boldly created a new sense, the "illative," whereby the Supreme Being is alleged to make known his existence. It is clear that in the art of creation the Deity has still much to learn.

There is a quite pathetic anxiety on the part of all our worthy ecclesiastics to make every allowance for science, to court its investigations into biblical and theological questions, and then to pronounce it diabolical if the result does not accord with their convictions. There have been a few noteworthy exceptions. Archbishop Magee, whose recent death deprived the Anglican party of all its common sense at a blow, showed a most praiseworthy desire to be reasonable on one or two occasions. He went so far as to admit that the principles of Christianity were not applicable to the state but only to the individual. How the Christian doctrine could

be applicable to the individual, while he admitted its inapplicability to an aggregation of individuals, he omitted to explain. Miracles, too, have been abandoned, and a professed belief in them is not now, if I am rightly informed, an indispensable article in the episcopal equipment.

This policy on the part of our Church dignitaries is materially contributing to the downfall of religious belief. Not that I see any reason for deploring the natural decay of a belief which has served its useful purpose in the world's history. I merely wish to point out that the Church is not decaying gracefully. Our present sympathy with France and our admiration for her literature have also made for the disintegration of the religious empire. Never was there a less religious and less moral literature than that of contemporary France. At no time in history, however, has the Gaul manifested that morbid love of the useful which has long made a moral of some kind absolutely needful for the Briton.

Thanks then to the mistaken policy of the Church, and thanks to the dissemination of French ideas and of popular scientific manuals and lectures, the materialistic school of thought is every day strengthening its hold upon the common sense of conservative Britain. The scientific movement progresses slowly, indeed, but it must be borne in mind that its seed is sown on a stony soil. For intellectual man is not unlike a mummy. When the bands of tradition, superstition, ignorance, and indolence have been unwound, the body exposed to view is found to be petrified by the accumulated action of centuries.

No doubt it ruffles the pride of the lord of creation, who has been accustomed to set himself on a pedestal apart from the rest of the world, to be asked to descend from his imaginary elevation and to join the ranks of the other animals. With the body of a refined ape and some of the primitive instincts of the tiger, he is most anxious to be recognized as a supernatural God-created being. Man is willing to allow that animals may be automata, but is roused to the highest pitch of indignation if the arguments he applies to them are also applied to himself. He learns that he possesses no member and no part of his body peculiar to his species—he propagates his kind after the manner of animals, he nourishes himself on the

corpses of other animals, he lives and dies like an animal—in fine, although the very faculty on which he is content to rest his claim to distinction from the animals demonstrates the distinction to be chimerical, his swollen self-opinion struggles hard to erect a barrier against the prospect of a common doom.

And yet it is impossible to avoid the conclusion that we are nothing else than irresponsible automata, whose actions and thought are predetermined to the minutest detail. Is not the whole history of science one long endeavor to prove the external world to be a huge automatic machine? If not, what is the meaning of the words "law of nature"? A law of nature which is not immutable is no law. And are we to believe that, while the rest of nature moves in accordance with immutable laws, which science takes so much labor and pride in discovering, man alone, a small, moving aggregate of molecules, rarely elevated more than six feet above the surface of one of the smaller planets of one of countless solar systems—are we to believe that he alone is not subjected to the laws that regulate the remainder of the universe? Even man's self-esteem will scarcely demand a system of divine legislation framed for his especial benefit. The act of volition is often speciously urged in refutation of the Determinist position. But the will, which is analyzable into the greater pleasure attending a particular course of action over its alternatives, is itself an inherited want or desire in the direction of that action.

It follows that each life, no less than the planet on which it exists, has its orbit determined for it by nature. I will take an instance for the sake of clearness. Every human being at birth is found to possess the rudiments of certain distinguishing mental and physical qualities, which must either have been transmitted by inheritance, or have been conferred on him by the grace of a Supreme Being. The question then resolves itself into the weighing of probabilities. On the one hand the law of heredity, taken entirely by itself, affords every explanation of the observed phenomena. On the other hand, the existence of a Supreme Being has first to be proved—a task of some difficulty—and after convincing proof has been adduced, the likelihood of his quite unnecessary personal interference at the birth of

every child remains to be ascertained. But the very existence of a world, which never had a beginning, nor will ever have an ending—in which death merely constitutes a variation of the omnipresent life—renders nugatory the hypothesis of a Creator. For the world itself is eternal life.

The probabilities, then, favor the supposition that a human being at birth is possessed of mental and physical qualities determined by heredity. And what does our life represent? The development of those mental and physical qualities, and their modification by environment; that is to say, by the differentiating elements introduced by race, country, education, associates, and so forth, all of which can be traced back to heredity.

There is thus no single action and no single thought of a human being which could not conceivably be predicted from a perfect knowledge of hereditary conditions. Character is fate. Once and for all the word "chance" is eliminated from the scientific vocabulary. An "accident" is a mere figure of speech; "it happens" is a phrase scientifically impossible.

But Determinism, although it reduces the human species, together with all existing things, to a state of automatism, to mere machinery, has nothing in common with the capricious fatalism of the Mohammedan, of the Russian, or the Calvinist. It possesses scientific certitude; it never deviates in any one's favor or to any one's prejudice. It is a creed whose disciples never waver and never doubt, for it is built upon infrangible scientific truth. Determinism is greater than all religions, for it includes them all, as the beautiful includes the good.

Religion is a form of intellectual measles, an illness through which nations and individuals have to pass in their childhood; if they catch it in later years, it becomes a disease fraught with danger. Like adversity, religion has its uses—I should say, has had them. And what are they? Firstly, it is believed to serve as a guide to conduct. But the imperfect truth of religion, as will be seen, gravely detracts from its ethical utility. Its second value is supposed to lie in the domain of psychiatry. But religion not being based upon science, that is, upon complete truth (so far as it can be at present ascertained), the contemplative mind soon conceives doubts which, though they may be partially laid,

cannot fail to be a perennial source of disquietude, whereby the consolatory efficacy of religion is irremediably impaired. Determinism, based as it is on scientific truth, gains an easy victory over the faulty ethics and the dubious illusions of religion. Contrast it, in a few points, with some of the main features of the Christian religion, which may be taken as representative of the highest religious thought of the most civilized nations. I have no desire to contrast invidiously the teaching of Christ with the ethical principles derivable from the doctrine of Epicurus. Every allowance must be made for Christ's absolute ignorance of science, an ignorance due to the narrow-minded bigotry which informed the contemporary system of education. Nor should I venture for a moment to estimate comparatively the influence on the human race of these two mighty personalities. I desire only to contrast a few main points, in order to exhibit the inferiority of the Jewish philosopher so far as the universality of his ethics is concerned. His noble passions, his tenderness of heart, his overflowing sympathy carried him into an excess of love (amounting to prejudice) for the meek and the weak. In his passively feminine soul emotion triumphed over reason, and herein was the source of his power: for emotion appeals to women and undeveloped men—the vast majority of mankind.

Hence it comes that Christ blesses the poor both in spirit and in purse, and endeavors to comfort them for their misfortunes in this world by a promise of cakes and ale in a hypothetical hereafter—a Barmecide feast, the prospect of which has been largely instrumental in subduing the lower classes of society to a state of lethargical resignation, and in converting them to mere beasts of burden for their superiors to ride to death. Simultaneously with this glorification of the poor, Christ is never weary of denouncing the rich and the powerful, whom he attacks in the most fanatical and unreasoning terms, and threatens with an eternity of barbarous suffering in a fantastic hell. The Determinist doctrine, on the other hand, neither extols the poor nor denounces the rich; it acknowledges the disparity of social rank and power as an inevitable outcome of human inequality. Rich and poor alike have an equal claim to pity and mercy; their vices and their

virtues, their social elevation or degradation, are not within their control, and in the end it may be that neither rich nor poor can boast the happier life. Christianity is far too exclusively the religion of the poor and meek, and puts a premium on unfitness. But it is true that the man who is endowed with strong physical powers and mental force has no more right to plume himself on their possession, as if they were acquirements due to his voluntary energy and perseverance, than need the man, to whose lot has fallen physical and mental poverty, be ashamed of his misfortune as if he had had the option by voluntary effort of becoming a Hercules or a Solomon. "Pride" and "shame," "vice" and "virtue," are meaningless words—mere labels. "Vice" is an object of pity, toleration, and mercy, not of loathing and hatred; nobody is able to control his desires and passions beyond the limit of his nature. Sin is a misfortune, not an act of wilful transgression. The possession of "virtue" confers no merit on the possessor. It is a valuable and useful quality implying self-command and soundness of instinct: but the "virtuous" man, within the limits of virtue as understood at the present time, appears in general to regard himself as the creator of his own character, and is often distinguished by the cruelty and intolerance of his judgments upon his "weaker" brethren.

I have not space to traverse in detail the points in which the doctrines of Christianity, where founded on partial truths, are manifestly at fault for want of the scientific basis on which Determinism rests. The reader of the New Testament may be left to discover the deficiencies for himself.

In many respects the scientific faith runs counter to the most cherished beliefs and traditions. In the matter of education, for instance, seeing that all mental and physical characteristics are transmitted by heredity, and that they first appear in the form of rudimentary tendencies, their right moulding during the early years of life in harmony with individual idiosyncrasy becomes the most serious and vital of duties. When the body and mind are still in their pliant years, inherited tendencies may be modified to some degree for good or for evil. The triumph or the wreck of a whole career may turn upon education and the efficiency of the educator.

Religion must be entirely excluded from the curriculum. It is unscientific and therefore unnecessary, except perhaps so far as it serves as a *memoria technica* for a few imperfect ethical principles. These are, however, so deeply imbedded in the stratum of fiction that the compound is in all likelihood rather injurious than beneficial to the youthful mind. "But," cries the horror-stricken British family father, "what will then become of morality? Everybody will be robbing and murdering and" In fact, he describes an impending reign of terror. It is the old prejudice: without religion no morality. And what, pray, has religion to do with morality? What is morality? Morality consists in the first principles of conduct deduced from a certain conception of life. The religious conception of life is scientifically untenable and false, and the first principles of religious morality are impaired in proportion to that falsity.

All honor to the ancient Chinese. Religion was not one of their vices. The teaching of religion in England, as a part of the school course, has done more harm among the rising generation than can easily be estimated. For when the growing mind begins to reason and in consequence to discard religious belief, it is apt to reject at the same time the morality which the Church has so intimately and exclusively bound up with that belief. So great is the evil of basing morality on religion.

There is no function invested with greater national responsibility than that of the priest of youth. Nor can it be said that England has no sense of his vital importance. It is only necessary to trace the career of the average middle-class pedagogue to show how admirably the institutions of this country equip him for his arduous task. Let us particularize, and assume him to be a student of the classics. Every one will admit that the incomplete mastery of two dead languages is of the utmost value in practical work-a-day life. Our student, after the expenditure of much ink, acquires a certain capacity for rendering untranslatable English prose into unintelligible Greek and Latin—or perchance attains to a happy knack of phrase-twisting which enables him, in connivance with a Gradus, to turn out a certain number of defective verses within a given time. He becomes per-

functorily acquainted with the history of Italy and Greece; he has a dim idea that since the days of Rome and Athens other peoples besides the English have existed, and presently, with a superficial knowledge of mathematics, and, in exceptional cases, with a thin varnish of foreign languages and science, he is one day despatched by exultant parents to a university where we will suppose he gains a scholarship. Should he deem it worth his while so far to exhaust his energies as to work some six hours a day, he is promoted to the rank of a don, and delivers lectures on the classics with the aid of the latest German commentaries.

But suppose, on the other hand, the result of the final examination does not entitle our student to aspire to so lofty an eminence. He must then select some profession. The services are as distasteful to him (we will assume) as chapel services, without taking expense into consideration. Should he enter the Church? His conscience is still too tender to permit him to sacrifice his scruples to expediency. The bait is tempting—a good position in society, and congenial work. But his queasy stomach rejects the hypocrisy of subscribing his name to thirty-nine articles, none of which he believes to be literally true, although the example of his less conscientious fellows invites him to put upon them whatever interpretation may save him from deliberate perjury. The bar?—a pleasant way of doing nothing in the hope that good may come. Not to be dreamed of. There remains yet a last straw at which the poor man clutches. Get a mastership in some good school, say his advisers; a fair income and, moreover, a vacation await you. The tempting prospect overcomes his better judgment, and he is straightway pitchforked into a tutorial position. His knowledge of the art of teaching, it is true, is somewhat meagre. He has faint (or vivid) recollections of being caned in his schooldays, but as to the existence of any theory or art in connection with the administration of corporal punishment or of education in general, he is as ignorant as his future victims. He presently looks upon teaching as an unpleasant necessity, and his great object is to get through his work with all possible celerity. It is needless to add that the pupils derive great benefit from a teacher of this description.

And yet I am paradoxical enough to think our system of education is not the best in the world. I even venture to imagine that it is villainously bad. I confess to a prejudice in favor of an educator who knows how to educate. The ideal pedagogue appears to me in the light of a veritable philosopher, thoroughly conversant with the theory and practice of tuition, uniting a knowledge of psychology, the instincts and keen observation of the scientist with the love and sympathy of an intimate friend.

The immense, the incalculable importance of the part that education should also play in the mitigation of criminal tendencies and even in the prevention of crime cannot be too insistently urged.

What is crime? A crime is an action threatened by the law with punishment, says Kant; and freedom of action or free-will is a legally necessary condition of crime. But the law of heredity conclusively demonstrates that free-will and freedom of action stand in the category of lively imaginings. Therefore crime, as the law understands it, is non-existent, since no imputability can be recognized when a man is not responsible for his actions. Therefore the law is not justified in inflicting punishment. And it is a fact worthy of remark that the law partially admits that her right to punish is open to question. For it is well known that the plea of youth up to a certain age is sufficient to exclude culpability; that is to say, although a very young man cannot be held accountable for his actions and is sent, perhaps, to a reformatory, the adult man, who is only a maturer development of the youth, is held to acquire in some mysterious way, by the mere act of growth, an imputability he did not originally possess, and is imprisoned or hanged, as the case may seem to require.

What then is a criminal? An unfortunate being, the victim of an omission of duty on the part of the community, a man whose inherited tendencies are opposed to the natural laws of human society, and who is therefore a noxious and dangerous element in the social compound.

No community, however, can equitably inflict punishment for its own omissions and transgressions; firstly, in permitting the mentally and physically unsound to propagate their kind, whereby men are

brought into the world, whether they will it or no, foredoomed to vice and crime; and secondly, in tolerating the glaring deficiencies of the educational system, whereby the opportunity of moulding the hereditarily vitiated organism in the direction of its better nature has been neglected at the most critical period of life. Society must seek, by scientific measures, to repair its errors, due to ignorance of scientific principles. The criminal or psychopath must be regarded as a man afflicted with hereditary mental disease or abnormality.

The healing of the suffering mind is at last beginning to attract the attention of medical science, which has too long devoted all its efforts to the healing of the suffering body. The cure of the mind and the preservation of its healthy condition have been left almost entirely to the sweet will of individual fancy. Only where the condition of the mind has seriously affected that of the body have the mental faculties received any special consideration from medical men. It will be interesting to mark the more restricted or extended use of hypnotism as an agent in mental pathology.

"Criminals," so called, may be divided into two classes—the "curable" and the "incurable." The Determinist's conception of crime necessitates a new terminology, and I use these terms to express the idea that the treatment of "criminals" has passed from the phase of punishment for a wilful offence to the phase of remedial measures for the cure of a mental disorder.

I will assume, for the sake of illustration, that a man has been convicted of some offence against the natural laws of human society. The "patient," or "psychopath," is then removed to a reformatory, modelled perhaps on the type of the Elmira Reformatory in the State of New York, and examined by the medical specialist of the establishment with a view to ascertaining the best course of treatment.* When this point has been settled, the education of his physical and mental faculties is commenced on scien-

* Many interesting particulars about the Elmira Reformatory will be found in the *Report of the Commissioners appointed to inquire into the Prison and Reformatory System of Ontario*. Printed by order of the Legislative Assembly, Toronto, 1891.

tific principles, his physical condition being regarded as equally important with his intellectual. The question of his having been allowed to come into being at all must necessarily be waived; and the fact of his existence being accepted, the deficiencies of his education remain to be made good. He accordingly receives instruction tending to the healthy development of his innate and acquired capacities; and the restriction of his freedom is proportionate to his progress. Above all the patient attends a course of practical ethics. He is taught to recognize the fact that self-interest, the motive-power of all human action, dictates an upright and honest life as the surest means of attaining to the highest happiness this, the only world affords.

Should a long course of educational treatment prove unavailing, or should the "patient," after being released from control, relapse irrevocably, he must be regarded as "incurable." Two courses are then open to the community. Either he must be killed as a dangerous wild beast, or he must be confined for life and prevented from propagating his species, as an unfortunate being with hopelessly perverted hereditary tendencies.

To kill him, it is evident, would be a most unjust and arbitrary act. It would mean killing him because he was not born of different parents, and because society had permitted his parents, in spite of organic constitutional defects, to reproduce their kind.

The other alternative is confinement for life. But science does not stop here—science bids his fellow-men, in their own interests, prevent the unhappy maniac by surgical* operation from vitiating with his progeny the already vitiated human race. If this idea appears at first sight extravagant, the history of the Jukes family—an example of the generation of a whole criminal tribe from a depraved woman of that name—may serve to restore my credit as a reasonable being. It is unfair to posterity, for whose existence the present generation is accountable, that any means which modern science suggests should be neglected to purge the unhealth of mankind. In the ultimate analysis, it is the problem of the sexual relations that

lies at the root of our social troubles. How far the evil calls for state interference, and how far the creation of a strong public opinion may assist toward a solution of this most pressing question, is not easy to decide. But the imperative necessity of introducing order into our educational chaos must be again insisted on. The healthy mind in the healthy body shrinks instinctively from an unsound union, even as the healthy man experiences a feeling, half pity, half aversion, when brought in contact with disease. Give the poorer classes, who are so vehemently abused for their fertility, and, in general, for not practising all the virtues which their superiors neglect, physical and mental training of the best—for they are daily subjected to the malign influences of hereditary deterioration intensified by degrading environments—give them intellectual interests in life—give them a fair start, instead of cruelly adding to their preliminary disadvantages—give them prospects of rising and of improving their condition—in fine, raise their standard of comfort, and they will not long merit the reproach of incontinent procreation. In the upper classes, although more care is exercised in the regulation of sexual unions, many precautions yet remain to be taken. A false modesty is paraded where marriage is concerned. Surely when one considers the possible fate of children brought recklessly into the world against their will, the point of delicacy is a little strained and irrelevant. Marriage should be barred by state restriction in cases where mental and bodily diseases of a serious nature are likely to be transmitted to the next generation. In every case, the law, or social custom should enforce the production of a medical certificate as to fitness. A number of worthy people will be startled out of their wits at the bare suggestion of such proceedings, but science and reason are in the end far kinder than sentiment and emotion. And further, the modern state already partially recognizes its duty in this respect by forbidding the marriage of children and lunatics. Is it not absurd when we have it in our power to limit the possibility of disease and crime to be horrified at the idea of doing so? Is it really preferable to see the crime committed, and then vainly to seek a remedy? Surely the only rational method is the prophylactic.

* A measure, I believe, strongly advocated by Signor Garofalo.

So much for the "incurable" psychopath. I will now turn my attention for a few moments to his "curable" brother. He also undergoes a term of special treatment in the psychiatric asylum, where the deficiencies of his education are made good, and a course of practical ethics, combined with physical discipline, help to restore his moral equilibrium. He may then, probably, be again trusted to himself in the outer world, with little likelihood of relapse. He will start afresh in life, without the slightest stigma being attached to his name. His friends will congratulate him as a convalescent. But such methods are not yet dreamed of in our philosophy, which has not yet emerged from the timorous futility of "Don't know," and the audacious untruth of "Can't know."

Briefly to conclude. Religion can no more mix with science than oil with water. Science acknowledges no necessity for the existence of religion, and finally severs the bond between morality and religion. Morality, altogether independent of religion, is entirely based upon self-interest. The supposed connection between religion and morality is an illusion most pernicious to the general welfare and advance of mankind. Religion, as a superfluity, should be excluded from all educational institutions. Its place will be supplied by the creed of scientific philosophy—Determinism. The primary principle of Determinism, namely, that a human being is an automaton, and therefore not responsible for his thoughts or his acts, taken together with its corollaries, more than suffices for every intellectual need hitherto provided for by religion. For the two great factors in the value of religion are its ethics and its sedative properties, and in both these uses Determinism displays overwhelming intellectual superiority. Its ethics are more universal and its consolation more assured; for they both rest on irrefragable scientific truth. The Determinist is consequently never harassed by doubts—the Rock of Ages is fragile compared with the adamantine foundation of his creed.

Determinism never fails of the deepest pity, the broadest charity, and the truest encouragement in the struggle of life. Sympathy and tolerance are of its very essence. It is the faith, not only of the poor, but also of the rich; not only of the weak, but also of the strong. Its only

limitations are those of the universe itself. It gives man the truest conception of life, restricting his brief existence to this earth, and abolishes the logical necessity of the ideas of heaven and hell, which owe their origin to the now exploded belief in the freedom of will to do good or to do evil, and in the supposititious benevolence of a Creator. Pride and humility become alike absurd, seeing that man has no choice in the selection of his ancestors, and could not be otherwise than he is, however much he might wish it. Vice and virtue are the acid and the alkali, the positive and negative poles of existence—both necessary, both inevitable—each fading imperceptibly into the other, like the hues of a rainbow. But the Determinist, recognizing the fact that pleasure is the motive of all action, perceives that the habit of vice, that is, the antipodes of virtue, is not compatible with the very highest forms of pleasure. He endeavors, therefore, to abandon the habit so far as he judges it to be prejudicial to his interest. Existence resolves itself into an art—the art of cultivating the little garden of his life, and rearing in it whatever finest flowers it may yield. And through all he has a vague sense that the scales of joy and sorrow are nearly balanced, and that the sum of life is colorless as the sunbeam in which are blended all colors.

Man is but a child "of larger growth," and as the child, so the man has his playthings, and these he calls the work of life. Work is his greatest need, for he lives in order to forget life. And so we grown-up children attempt to amuse ourselves, during our short span, with the playthings which uncaring Nature has flung to us—toys with the grandiose titles we have invented to persuade ourselves that we are more than we are. We depict the world in written words, or on colored canvas, or in blocks of marble, buoyed up by the empty hope and ambition that posterity, centuries hence, may look upon them with admiration, whereas posterity may, perhaps, smile at our primeval ignorance. We endeavor to mitigate evils whose very mitigation brings compensatory evil in its train; we devote life to a round of reverence and worship that advance not one jot the happiness of humanity, and arrest not one moment the irresistible flux of the universe. But yet to put the question, "Is life worth living?" or to con-

ceive life as a disease, of which man is but a symptom, is as fatuous as to believe, with Dr. Pangloss, that this is the best of all possible worlds. Even were it our inclination, it is not in our power to dam the flood of civilization. We are hurried onward in spite of ourselves. The utmost we can do is to use the stream to help us

on our way. Let us, therefore, calmly confront the deeper pains as well as the higher pleasures involved in the refinements of human progress. Let us look fate boldly in the face and—

" . . . let determin'd things to destiny
Hold unbawail'd their way."

—*Fortnightly Review.*

VISHTASPA.

BY A. MARY F. ROBINSON (MADAME JAMES DARMESTETER).

I.

For thirty years Vishtaspa reigned alone,
No King above him in the empty skies,
No Lord of all earth's fallen sovereignties
To mock the mighty tedium of his throne.
To him the secrets of the stars were known
Who was above all sages great and wise ;
Yet as the years dragged on without surprise
He wearied of this world that was his own.

Earth is too narrow for the dreaming Soul.
Ay, tho' she hold it all from pole to pole
Her least desire is wider than the whole.

Therefore who knows the limit of his power
Disdains the trivial baubles of an hour,
And plunges where the seas of silence roll.

II.

" Life is a dream," Vishtaspa said, " wherein
The dreamer lives alone, the rest is vain.
My dream shall end, for I would sleep again."
He went his palace-terraces to win :
—" Farewell," he said, " glitter and glare and din ;
Farewell ! I cast me to the quiet plain."
But as he would have leapt, a voice spoke plain :
" Mortal, thy Master saith, thou shalt not sin."

Lo, at his side, unguessed, Zoroaster trod.
—O sudden peace of heart, O deep delight
Of souls outgrown religion's earlier rite,
Yet spent and thirsting for the springs of God,
When the undreamed-of Prophet deigns appear !—

Vishtaspa reigned in rapture many a year.

—*Academy.*

NEW STARS.

BY J. NORMAN LOCKYER.

THE announcement made early last month of the appearance of a new star in the constellation Auriga in the Milky Way is certain to attract general attention to the many interesting questions raised by such sudden outbursts in the depths of space. It may indeed be said that in the whole domain of astronomy the class of phenomena to which most mystery attaches, and which, so far, has baffled inquiry most successfully, is undoubtedly that which relates to the sudden appearance, now in one region of the heavens and now in another, of these strange visitors.

These so-called "New Stars," some of which, at the moment of discovery, have been found to be as luminous as Jupiter, or even Venus at her brightest, have in almost all the explanations heretofore suggested been supposed to be "Old Stars"—by which term is meant stars of the ordinary kind—suddenly subjected to some process which has driven them into a condition of fervent heat; and so long as "Old Stars" of the ordinary kind were supposed, all of them, to be bodies like the Sun, those processes were favored which we imagine to be actually at work on, or most easily associated with, that body.

It is now some little time since, in a paper in this Review, I gave an account of the evidence gathered during the last thirty years by spectroscopic workers all over the world as to the true nature and conditionings of ordinary stars. Some of the conclusions to be gathered from this marshalling of new series of facts, obtained by the use of one of the most powerful instruments of research of modern times, might have been easily expected to be novel, and they were. As a matter of fact, some of them suggest that our usual notions about stars generally cannot be justly held with regard to all of them—that, in short, there are stars and stars. Nor do the conclusions to be drawn stop here. The wide induction rendered possible by the enormous area of new facts now available suggests further that some old theories require to be recast, while some modern ones disappear altogether.

Some of these general conclusions have the most important bearing upon the so-called "new stars." One is that there is a complete evolutionary sequence between nebulae and stars, whereas the idea in vogue was that these bodies represented different orders of creation. Another was that the spectroscopic phenomena presented by some nebulae, stars, and comets, have so much in common that, unless we throw overboard the *regula philosophandi*, a similar nature must be ascribed to them. And since the labors of Newton (of Yale), Schiaparelli, and others have convinced most people that comets are swarms of meteorites, it is probable that some of the stars and nebulae in question may be of like nature. It was next shown that, if we assume two meteor swarms or comets moving near each other, we can easily explain the phenomena of all the "new" and many of the "variable" stars; whereas the received idea was that they depended upon the rotation of a single star differently illuminated on different sides, or else with axes of different lengths.

To prove such positions as these is naturally a work of years. The chief thing that we can do is to note whether the new knowledge as it comes is in harmony with, or runs counter to, the new hypothesis, and to seek for new tests and vigorously apply them.

Since the new views were put forward, the work of Darwin, Pickering, Roberts, and others, has produced evidence of the most important nature in their favor. One by one the facts have been established that the solar system may, at a former stage of its history, have been a swarm of meteorites; that the spectra of nebulae and of a certain class of stars remarkable for the appearance of bright lines in their spectra are similar to a degree hitherto undreamed of; and finally, that in a nebula so-called stars may vary their brilliancy with unimagined rapidity, and that even such stars as the Pleiades may in all probability be only the bright centres of a nebulous assemblage, a meeting-place of meteoritic streams.

While, then, the phenomena of new stars suggest that we are in the presence

of the most mysterious actions in the heavens, so long as we look to the old ideas to explain them, the new views on the other hand suggest that such phenomena must of necessity arise from time to time from the mere existence of moving meteor-swarms in space.

It seemed, then, to me that the phenomena of new stars supplied a very rigid test for the new views, for, if they were right, all the mystery should be easily explained, and all the facts accumulated during three centuries should fall into a simple order. I have applied this test as honestly as I could, and it is not a little singular that another new star, which doubtless will furnish us with more, should have appeared within a month of the publication of the long memoir which I presented to the Royal Society about a year ago.

The object of the present article is to state the method employed, and the results recorded in the memoir, so that the phenomena which the new arrival will in all probability continue to furnish us for some time may be thoroughly understood as they are chronicled for public information from time to time.

Many new stars have been observed, and it is well to begin by considering the views which have been suggested as to their origin. For the first, we have to go back to the times of Tycho Brahe. They related to the new stars which appeared in 1572 and 1604.

The Nova of 1572, observed by Tycho Brahe, is the first of which anything like a complete record exists; it appeared in Cassiopeia and was minutely described by Tycho Brahe. The Nova seemed to be destitute of nebulous surroundings, and only differed from other stars in the vivacity of its scintillations. When it was first observed it appeared more brilliant than *Sirius*, *α Lyrae*, or Jupiter, and even rivalled the splendor of Venus at greatest brilliancy, being, like Venus, visible in the daytime. At the beginning of December a diminution of brightness was noticed. This regularly continued until, in March, 1574, the Nova had disappeared.

Changes of color accompanied the changes of brightness. When the star first became conspicuously visible it was white, like Venus and Jupiter. It then acquired a yellow color which merged into red. In the first months of 1573 Tycho

Brahe compared it to Mars and *α Orionis*, and considered it to be much like *Aldebaran*. Later on in the same year, and especially toward May, a leaden hue was observed. This continued until January, 1574, when the color became less clear and less white as the star slowly disappeared.

The famous Nova which appeared in 1604 is associated with the name of Kepler, as that of 1572 is with Tycho Brahe. It was first observed on October 10th by Bronowski, a pupil of Kepler's. To begin with, it was brighter than first-magnitude stars, and also Saturn, Mars, and Jupiter. In March, 1606, it disappeared.

Although many other Novæ have been observed, none have matched the splendor of those of 1572 and 1604, and of none have such circumstantial accounts been written.

We next come to the explanation of the phenomena put forward by the respective observers.

Tycho Brahe considered that new stars were formed from the cosmical vapor which was supposed to have reached a certain degree of condensation in the Milky Way, and the fact that the Nova appeared on the edge of the galaxy was used to give weight to this hypothesis of stellar formation. Indeed, some observers imagined they could see the *hiatus* or opening out of which the Nova came. The disappearance of the star was supposed to be due either to some action in itself or to its dissipation by the light of the Sun and stars. It should be remarked that when Tycho Brahe advanced the above theory the tails of comets were looked upon as similar in constitution to the Milky Way. Kepler agreed with Tycho in considering that new stars were created from the ethereal existence of which the Milky Way was composed. The circumstance that *Mira* or *α Ceti*, which was looked upon as a Nova, appeared in a part of the heavens distant from the Milky Way, was explained by saying that the nebulous material was not exclusively confined to the galaxy, as supposed by Tycho Brahe, but pervaded all space.

A fact deemed of considerable importance was that both Tycho Brahe's and Kepler's Novæ became suddenly and strikingly visible, and did not appear gradually to increase in brightness. Indeed, it was

thought that all new stars must exhibit the maximum of brilliancy at their first appearance, and Kepler went so far as to use the statement made by Antonius Laurentinus Politianus, that he had seen the Nova of 1604 increase in brightness as an argument against his having seen the star at all.

The first Nova that attained any brilliancy, after that of 1604, appeared near β Cygni in June, 1669, and was observed by Anthelm. This Nova fluctuated in brightness between the third and fifth magnitudes, and finally disappeared altogether. It is most probable that observations of this star drew Newton's attention to the subject, and led him to the idea that "Novæ" were produced by the apulse of comets, propounded in 1686 in the *Principia*.

In dealing with the period between Newton's time and our own, we shall give, as shortly as possible, some of the most important views expressed during the last quarter of a century.

According to the hypothesis advanced by Zollner, all stars, at a certain period of their formation, become covered with a cold non-luminous crust. If the glowing mass bursts forth, the chemical combinations which have formed on the surface, under the influence of a low temperature, are again decomposed, with a resulting development of considerable heat and light. Hence the great brilliancy of a new star must not be ascribed merely to the bursting forth of a glowing mass, but also to the combustion of the substances which form the shell.

Drs. Huggins and Miller's observations of the Nova that appeared in Corona Borealis in 1866 led them to the following speculation: "The character of the spectrum of this star, taken together with its sudden outburst in brilliancy and its rapid decline in brightness, suggests to us the rather bold speculation that, in consequence of some vast convulsion taking place in this object large quantities of gas have been evolved from it; that the hydrogen present is burning by combination with some other element and furnishes the light represented by the bright lines; also that the flaming gas has heated to vivid incandescence the solid matter of the photosphere. As the hydrogen becomes exhausted all the phenomena diminish in intensity and the star rapidly

wanes." In plain English, on this view we were spectators of "a world on fire."

Mr. Johnstone Stoney, in 1868, suggested that "New Stars" might be produced by the friction of the outer atmospheres of two stars brushing against each other: "the outer constituent of their atmosphere [hydrogen], and the outer constituent alone, would be raised by the friction to brilliant incandescence, which would reveal itself by the temporary substitution of four intensely bright for four dark hydrogen lines."

Observations of the new star in Cygnus (1876-77) led Professor Vogel to support Zollner's views. Dr. Lohse, in 1877, considered that "the lighting up of new stars may probably be looked upon as the result of the innate affinity of chemical matter. By the progressive cooling of the mass of a luminous body (fixed star), which consists of heated vapors and gases, an atmospheric envelope is produced which absorbs the light so much that the star cannot be seen at all, or only very faintly, from the Earth. As this body continues to give out heat at length the degree of coolness is reached which is necessary for the formation of chemical combinations. The greater portion of the body is composed of elements which then combine, producing by their combination heat and light; and thus making the star visible to a great distance, and for a long or short space of time."

In 1877, when discussing the phenomena of Nova Cygni, I advanced the view that meteoritic collisions were in all probability the cause of them. Almost, if not quite, the last view to which we have to refer is due to Mr. W. H. S. Monck, who suggested in 1885 that new stars are dark (or faintly luminous) bodies which acquire a short-lived brilliancy by rushing through some of the gaseous masses which exist in space.

It will be seen from the above that there are more than twenty years of modern work on these strange visitors to be co-ordinated. This work has been of a most searching kind, since the spectroscope—that marvellous aid to inquiry—has been the instrument employed. The tests rendered available by its means have been applied to the observations recorded, and the results obtained will be very briefly stated in the case of each Nova.

The quality of the light emitted by the

new star which appeared in the constellation Corona in 1866 shows that the Nova was intimately related to comets and nebulae, including in this term the bright-line stars. Two of the bright rays which appeared on the colored strip into which the prisms of the spectroscope decomposed the light of the Nova turn out to have their origin in carbon, and to be identical in position with similar radiations emanating from some stars, while three other bright lines demonstrate the presence of incandescent hydrogen. A line was seen by some observers which in all probability was the same as that which characterizes the majority of nebulae.

The only obvious deduction from these facts is that the same chemical substances produced the light of this Nova which exist in comets and nebulae. As the Nova faded (from the second to the ninth magnitude), the lines dropped out one by one, until finally only a single representative of incandescent hydrogen remained, and this the one which in several nebulae is brighter than any other.

We next come to Nova Cygni, which appeared in 1876. At the time of discovery eight bright lines and many dark spaces were conspicuously visible upon the continuous background of colored light ordinarily seen in all celestial bodies. Brightest among these were the radiations indicative of hydrogen, while other brilliant rays are found to be matched by lines of sodium, carbon, and iron. But the most important line of all was one identical in position with the chief line in the spectra of nebulae; this brightened as the other lines faded, and finally glimmered alone in the spectrum, as it has been observed to do in some comets. Upon any probable supposition the temperature of the Nova at this time must have been lower than at the time of maximum brilliancy. This being so, the line which increased in brightness as the Nova was degraded to a faint nebula could not be due to incandescent nitrogen as had been supposed. The origin of the line was still problematical and the observed phenomena entirely unexplained, when the researches on the spectra of meteorites referred to in my last article seemed to offer a solution of the problem. It was found that if a meteorite be slowly heated in a vacuum tube, so as to volatilize some of its constituents, a bright line is seen in the

spectrum which disappears when the temperature is increased. This line was coincident in position with the one observed in Nova Coronæ and Nova Cygni, in nebulae and in faint comets, and apparently owed its origin to the magnesium fluting which is seen very brightly in the same position in the green part of the spectrum when a strip of magnesium ribbon is burned in air. These facts enabled the statement to be hazarded that the phenomena observed in Nova Cygni would occur precisely as described if the catastrophe were produced by the collision of two swarms of meteorites of different densities. In such a case there would first be the collisions between the two sets of outliers, then the denser part of the smaller swarm would enter the outliers of the larger, and finally, after the densest parts of both swarms had come together, producing the maximum of light—which is generally the time at which attention is called to a new star—the action would slacken, and the light and temperature be reduced.

These views as to the connection between Novæ, nebulae, and comets are considerably strengthened by the facts observed regarding an anomalous brightening discovered in the centre of the Great Nebula in Andromeda in August, 1885, which was the next "Nova" that made its appearance. The light was found to be matched by that of the flame of a spirit-lamp. This was a definite proof of the existence of carbon, and, more than this, the luminous radiations exhibited by the Nova under consideration were exactly similar to those which distinguish comets—in fact, they are so characteristic of these bodies as to be known as "cometary bands." This observation suggested a careful examination of the spectrum of the nebula itself. This was made by myself and my excellent assistant, Mr. Fowler, and it was found that, instead of being continuous, as had previously been recorded, it was like that of the Nova. This made the whole thing clear. The nebula was simply brightened in a certain part by some disturbance; when this disturbance ceased, the spectrum of the Nova was undistinguishable from that of the nebula—both showing characteristic cometary bands.

Now that the chief facts gathered from

each Nova in turn have been considered, we may next deal with some general considerations.

If the appearance of a new star be due to the collision of two meteor swarms, as suggested, it is obvious that the spectroscopic changes should follow the same order as those observed in the spectrum of a comet during its passage from the point of nearest approach to the Sun, when it is hottest and most disturbed; to that most removed, when all the energies have slackened down. The differences in observing conditions, and the relative physical conditions of the two swarms which produce a Nova, must, however, be allowed for. From this point of view a map has been constructed, showing the theoretical sequence of spectroscopic changes which would result from the collision of two swarms of meteorites, one of which, previous to the catastrophe, existed in the condition of a nebula, while the other was sufficiently dense to exhibit the spectrum of a comet near the sun. The typical spectrum produced by adding together these two spectra is similar to that of the Nova at the time of the first observation, so far as bright lines were concerned.

The first effect of the cooling of the imaginary mixed swarms would be a diminution of light and an accompanying disappearance of the dark lines, until only certain bright lines and flutings remained. This condition occurred in Nova Cygni six days after it was first spectroscopically observed, and in the Great Comet of 1882 when near the Sun.

As the temperature increases, the bright indications of sodium, lead, and manganese must disappear, and the hydrogen lines become fainter, while the luminosity in the green which represents magnesium gets brighter. This stage in the sequence was observed in Nova Cygni and Nova Coronæ; and all the lines which characterize it have been recorded in the spectrum of the nebula in Orion.

The carbon flutings next merge into, and become indistinguishable from, the continuous spectrum. One hydrogen line remains, and this the one which is usually found in nebulae. The only line telling of the presence of iron is the one visible in the laboratory when a low temperature is employed to produce the vapor. Eventually even this ceases its glimmering, leav-

ing a trio composed of the hydrogen line just referred to, a line which occurs in meteorites but the origin of which has not been determined, and the other which has gained in intensity as the others have sunk out of sight. This combination occurs in the nebula numbered 4373 in Herschel's catalogue.

The hydrogen line next disappears, and so the spectrum consists of two lines as in the nebula No. 2343 and many others, and in Nova Cygni nearly a year after discovery.

The last stage in the sequence is when the line attributed to magnesium remains alone. This was observed when Nova Cygni had degenerated to the condition of a planetary nebula; it is the solitary badge of the nebula No. 4403.

None of the Novæ which have been spectroscopically examined have shown the complete sequence of changes thus briefly stated, but Nova Cygni passed through most of them. The main point I wish to make is that, although the initial spectrum may be different in different Novæ, as the temperatures differ, the changes should follow the same order of decreasing temperature, however high or low the point occupied on the temperature scale when first observed; and this seems to agree with the facts. The dark absorption lines giving way to bright lines in Nova Coronæ, the brightest lines fading away one by one in Nova Cygni, and the carbon becoming less manifest in Nova Andromedæ, all go to show a diminution in the temperature of the star after the first observation. This deduction would also naturally be made from the variations in magnitude. Tycho Brahe's Nova and Nova Cygni dimmed very suddenly at first, and more slowly later on. Nova Coronæ flashed out very suddenly, and, as we have seen, its spectrum indicated a comparatively high temperature. Hence it is most probable that in this case we are dealing with the collisions of two rather condensed swarms of meteorites. In Nova Andromedæ, where the increase of luminosity was not so sudden, the temperature was not nearly so high. In this case we began at a point low down on the temperature scale, because we probably had to deal with a collision of two swarms not nearly so dense as those involved in Nova Coronæ; perhaps a slightly condensed swarm (a comet) passing through the Andromeda nebula.

One very interesting point about new stars has relation to their color and their color changes. The characteristic colors which distinguish nebulae and some stars which are supposed not to differ greatly in temperature from them, are dull-white, grey, or pale bluish-green. As the temperature increases, the color becomes reddish yellow, and from this merges through red, orange, yellow and white, and finally a bluish-white, the badge of the highest temperature, is reached.

Now consider what must happen in the case of a new star on the idea which we have stated. We begin with two swarms probably in different stages of condensation. If no star or nebula were visible before, the sudden increase of light would be due to the collision of two swarms or streams quite invisible so long as disturbances are absent. If one of the swarms engaged already existed as a nebula, the collision of another with it would cause an outburst similar to that of Nova Andromedæ. If the swarm existed as a star, and was therefore in a rather more condensed state, the collision of another swarm with it would produce a higher temperature; this was the case with Nova Coronæ. But after the disturbance due to the collision has subsided the temperature must begin to fall, as the mixed swarm is not in a condition to keep it up. We see, therefore, that the color changes of Novæ will in general take place in the opposite order to that followed by a condensing swarm, because in one case the temperature is increasing, while in the other it is decreasing. The color of new stars will also be generally of a compound nature. These colors, then, should be special, and they often are.

All the color observations of Novæ have been compiled and discussed among the new tests from this point of view. The Nova observed by Tycho Brahe passed through white, yellow, and red to a *lead* color.

Many observations were made of the variations in the color of Nova Coronæ, and they show that it ran down from bluish-white to dull yellow.

The estimations of the colors of Nova Cygni show that the changes were very similar to those observed by Tycho Brahe in the Nova of 1572. From a golden yellow the Nova passed to red, and then to orange, which agrees with the portion

of the general color sequence—reddish yellow, yellow, red, yellowish red. The spectroscopic observations agree with those of color in assigning a lower maximum temperature to Nova Cygni than Nova Coronæ.

Finally, Nova Andromedæ was first reddish-yellow, then orange colored, reddish, and yellowish-red, which closely agree with the portion of the color sequence reddish-yellow, yellowish-red, red, yellowish-red.

The discussion of color observations, therefore, strengthens the view that new stars are complex bodies. The strongest evidence of the color being produced by two light-sources blended are found in such observations as "cream-colored," "yellow seen through a blue film," "buff-colored," "lead," "slight orange tinge," "red with tinge of purple," etc., and such instances might be multiplied.

After this general statement, it should be clear that all the facts brought forward prove that the various spectra observed in Novæ are very closely related to those of nebulae and comets, including in their turn the bright-line stars, the difference in observing conditions and the compound character of the Novæ being duly allowed for. The temperature and visibility of a Nova depend upon the size and degree of condensation of the meteor-swarms which produce it and their distance from us. Hence it is that all Novæ do not attain the same maximum temperature or brilliancy, and that some are lost to view before they descend to the same low temperature as others. In like manner, comets differ in their maximum temperature according to their different perihelion distances. The evidence derived from the observations shows that each Nova cooled as its luminosity diminished. And if we accept the statements that the characteristic nebula line was seen in the spectra of two small comets in 1866-67, and that Nova Cygni now exists as a small planetary nebula, we must conclude that nebulae are at a low temperature; for if the views that nebulae are very hot be accepted, the impossible belief is forced upon us that comets reduce their temperature as they approach the Sun and that new stars get hotter as their luminosity diminishes.

The changes in magnitude observed in Novæ are in strict accordance with the meteoritic theory of their origin, for the rapid fading away conclusively demon-

strates that small bodies and not large ones are engaged.

The complete discussion, therefore, tends to confirm the conclusion which I stated in November, 1887, that "new stars, whether seen in connection with nebulae or not, are produced by the clash of meteor swarms, the bright lines seen being the low temperature lines of elements, the spectra of which are most brilliant at a low stage of heat."

From the above it will be gathered that the Nova at present visible will receive the most cordial welcome from astronomers all over the world, and the first results ob-

tained at Kensington, showing the almost exact agreement of the photographic spectrum with that of those nebulae called "bright-line stars," and that the two swarms are now separating at a velocity of at least *five hundred miles a second*, are not unworthy of the first application of photography to the investigation of these strange phenomena, which we must now, it seems, consider by no means mysterious, but, on the contrary, a result in space analogous to that produced by the meeting of two trains at a level crossing.—*Nineteenth Century*.

A REPLY TO A PESSIMIST.

BY ALFRED AUSTIN.

I.

A BEAUTIFUL bright world ! forever young,
And now with Wisdom grafted on thy Spring,
Why do they slander thee with wailing tongue,
And lose the wealth of thy long harvesting ?
Why do they say that thou art old and sad,
When, each fresh April, nightingales are glad,
And, each returning May, paired misselthrushes sing ?

II.

" Stripped of our dreams ! " It is the sleeper then,
And not the shadowy corridors of night,
Fair visions have deserted. Hill and glen
As haunted are with wonder and delight
As when Endymion felt his eyelids kissed
By the moist moon, and through the morning mist
Foam-sandalled Venus flowered, immaculately white.

III.

" No deities in sky, or sun, or moon !
No nymphs in grove or hill, in sea or stream ! "
Why, I saw Artemis, this very noon,
Slip through the wood, a momentary gleam,
As satin as the willow and as lithe,
And heard her eager sleuth-hounds baying blithe
Hard on the intruder's heels, then rent Actæon's scream.

IV.

" Dead " ! Hamadryads frisk in every wood,
In every pool elusive Naiads dwell ;
Neptune's dread voice, deep as when Troy still stood,
Is stored for us in every murmuring shell.
List ! you will hear. But look, and you will find
Iris in rainbow, Hermes in the wind,
Delphi's inspiring fount in every wayside well.

V.

"No God! no Heaven!" The Gods you cannot kill,
 Nor banish from their seats the sainted choirs.
 The deep-toned organ is Cecilia's still,
 Still lamb-like Agnes quencheth wanton fires;
 Stephen still sanctifies the martyr's lot,
 And many a maiden, though believing not,
 Beholds Madonna's face, then chastens her desires.

VI.

O beautiful bright world! forever young,
 With gifts forever fresh. The seasons bring
 All that they ever brought, since flowers first sprang
 To deck the blushing consciousness of Spring.
 Summer still makes us glad that we were born,
 Our musings mellow with the mellowing corn,
 And to our fireside loves wise Winter bids us cling.

VII.

What is there we have lost while hearts still beat,
 While thought still burns? You cannot Man dethrone,
 Time's Heir-Apparent, from his sovran seat,
 Assail his empire, or curtail its zone.
 What though fledged Science fearlessly explore
 New worlds of knowledge unsurmised of yore,
 The fresh-found realms the Muse annexes to its own.

VIII.

Thus have we Eld's delights, our own as well:
 Science is but Imagination's slave;
 Nor have "the antique fables" lost their spell,
 Because we pierce the sky and plumb the wave.
 For me the stars still sing, the moon still grieves,
 The Fauns still rustle in the fallen leaves,
 The Crucified is risen, and glorifies the grave.

IX.

Is Love less sweet because men loved of yore?
 No, sweeter, stronger, with the ages' growth.
 Love's long descent ennobles loving more,
 And Helen's falsehood fortifies my troth.
 Bridging Time's stream with life's commanding span,
 I stand upon the Present, and I scan
 Future and Past, and seem to live along them both.

X.

What have we lost?—we, who have gained so much:
 The mind of man, familiar afar,
 Hath upon sun, star, planet, laid its touch,
 Lassoed the lightning, yoked it to his car.
 Yet fear not lest that Knowledge should deflower
 The awe that veils the inviolable Power,
 Or that we e'er shall learn what, whence, and why we are.

XI.

'Tis Mystery lends a meaning unto Life,
 Never quite guessed ; and simple souls, meanwhile,
 Find Paradise in mother, sister, wife,
 The far one's faithfulness, the near one's smile.
 So long as valor wins and beauty charms,
 And lovers throb into each other's arms,
 How can you rail at life, reproach it and revile ?

XII.

" Woe, agony, despair !" Woe, yes, there is,
 Despair there need not be. Meek wisdom tries
 To gain from grief an after-taste of bliss,
 And sees a rainbow through its streaming eyes.
 Nor, if I could, would I quite part with pain,
 Lest pity die ;—a loss, and not a gain.
 'Tis Pride alone despairs. Be humble, and be wise.

XIII.

We bear no " burden of the bygone years."
 Their matter perishes, their soul survives,
 Widening our hopes and narrowing our fears ;
 Shedding a shadowy charm athwart our lives,
 Guiding our gropings, steadying our feet,
 Like to an agéd nurse, that we may meet
 The Future without dread, whatever rue arrives.

XIV.

What if there be no Heaven ? there is the Earth.
 What if there be no goal ? there is the race.
 'Tis unfulfilled desire that staves off dearth,
 Sustains the march and stimulates the pace.
 Where is the " prodigal waste of myriad lives" ?
 No life is wasted that loves, hopes, and strives,
 And wears an eastward glow upon its fading face.

XV.

O beautiful bright world ! forever young,
 And now with Wisdom grafted on thy Spring,
 Why do they slander thee with wailing tongue,
 And lose the wealth of thy long harvesting ?
 Why do they say that thou art old and sad,
 When, each fresh April, nightingales are glad,
 And, each returning May, paired misselthrushes sing ?

XVI.

O beautiful bright world ! Earth, Heaven, in one,
 I thank thee for thy gifts : the gift of birth,
 The unbought bounty of air, sky, sea, sun,
 Seed-time and shower, harvest and mellow mirth ;
 For privilege to think, to feel, to strive ;
 I thank thee for the boon of being alive,
 For Glory's deathless dream, and Virtue's matchless worth.

VIVISECTION.

BY REV. LIONEL J. WALLACE.

AMONG the many debatable questions of the day vivisection holds an important place : more important, indeed, than some people are inclined to admit, since issues of considerable significance are connected with, or depend upon it. The crusade against it is carried on with vigor, while its advocates, though less vehement, are not less earnest. It may appear presumptuous in a lay person to take part in the discussion, and, no doubt, lay persons have often laid down the law in scientific matters in a very presumptuous way. But, though in some respects vivisection is a purely scientific subject, in others it appeals to the non-scientific public, and involves problems just as vital to the ordinary man as to the scientific student ; while, as a being liable to human infirmities, the physiologist has no greater interest in it than any other person.

Vivisection, in truth, is something more than a merely scientific question. It cannot be regarded in the same way as can the study of electricity or chemistry. These and other sciences can be considered apart from any emotional or personal feeling, but vivisection comes directly into conflict with a strong moral sense. Experiments on living, sentient organisms cannot fail to excite sentiments which would not be touched by any ordinary scientific experiments. Thus vivisection seems to stand in a class by itself, and the fact that it appears to come into collision with a moral sense renders the consideration of it complicated and difficult. Those opposed to it bring a two-fold charge against it. They declare that its practice confers no real benefit upon surgery or medicine ; at all events, no benefit which could not be equally well attained without it ; and furthermore, they assert that its pursuit degrades man's nature and hardens his heart. There is thus a two-fold inquiry to be made when considering vivisection. Is it useful ? Is it moral ?

The anti-vivisectionists answer both questions in the negative, and reproach the vivisectionists with being actuated mainly by a morbid curiosity, and with caring little or nothing for the moral aspect of the matter. If they could sub-

stantiate these charges, they would, of course, have a strong case against vivisectionists, if not against vivisection. But, in the very outset, they show a certain argumentative weakness which arouses suspicion. They prefer to attack individuals, or individual acts rather than principles, and they commit the unpardonable logical sin of arguing from the particular to the general. They select some case or cases in which extreme cruelty has been displayed, and, pointing to these, they ask, how can a science which is carried on by the practice of such barbarities be tolerated. By a series of harrowing pictures they appeal to the emotions, and when these are sufficiently excited, they proceed to the assertion that, for all practical purpose, vivisection is useless, and not only useless, but pernicious, for, putting aside the physical tortures inflicted on animals, it outrages, or blunts, the moral sense of mankind. Their position, therefore, is that vivisection ought to be suppressed on the grounds of utility and morality.

Those who would prove that vivisection is practically useless have set themselves a hard task and show no little boldness ; for they put themselves at once in opposition to that method by which science has won most of its triumphs ; the method of experiment. Speaking generally, vivisection is the experimental side of medicine and surgery, and by it certain experiments are carried on under the only conditions which can render them at all conclusive. No science, except perhaps, astronomy, has made any real advance without experiment, and the science of curing or mitigating disease would scarcely appear to any impartial observer likely to be an exception to the almost universal rule. Even the most bigoted anti-vivisectionist would admit that the art of medicine cannot be taught from books, or by theory, but that the actual observation of disease and its treatment is essential. Unless, however, experiments are to be performed on the human patient, the progress of medical science must be painfully slow and uncertain if the ordinary vivisection is to be condemned. By observation a student learns how to know and treat this, or that

disease, or injury, so long as it is normal in its course. By long and patient observation a wise man may learn to modify and improve his treatment, but without such experiments as those rendered possible by vivisection the wisest man is groping in the dark. Even the simplest operation performed on a dead body may differ notably in its results from the same operation performed on the body when alive. It ought, moreover, to be evident to any one thinking carefully about the matter that certain classes of disease, such, for example, as disorders connected with the nervous system, or those caused by the growth of organisms in the blood, can be studied successfully only in the living animal. The argument from other sciences should teach us something on this point. The chemist carefully selects the active principle with which to experiment, and can do nothing if the necessary vitality of the agent he employs is exhausted. The botanist takes the living leaf or spore, dissects it, puts it under abnormal condition; and by watching the actions of the tissues and secretions thus working and developing, gains the knowledge he desires. But he could not gain that knowledge were spore and leaf dead. It is just because they are living that he is able to win their secret from them. It is not easy to see why a method which is necessary to successful investigation in the case of a plant should be presumed to be useless in the somewhat similar case of an animal. It is asserted by those best qualified to speak on the subject that but for vivisection many facts of the last importance to the well-being of the human body would never have been discovered. The testimony of Darwin is very decided on this point. "I am fully convinced," he says, "that physiology can progress only by the aid of experiments on living animals. I cannot think of any step which has been made in physiology without that aid. No doubt many surmises with regard to the circulation of the blood could be formed from the position of the valves in the veins and so forth, but certainly such as is required for the progress of any science can be arrived at, in the case of physiology, only by means of experiments on living animals." This, coming from one who weighed his words as carefully as did Darwin, is strong; but still stronger is the evidence of facts. Accounts of old-fash-

ioned surgery read like a bad dream. Boiling pitch, or oil; red hot knives; corrosive sublimate used to stop the hemorrhage from the wounds, and in four out of five cases used in vain, made the surgery of our forefathers horrible. If the luckless patient survived the actual operation and escaped bleeding to death, he very often succumbed to fever, or mortification ensuing on the violent means employed for his cure. Everything is now changed. During the insensibility induced by an anæsthetic the knife does its work swiftly and cleanly; the severed vessels are securely tied; the wound dressed with some antiseptic preparation and the patient awakes as from a sleep inquiring when the operation is to be performed.

Now, to what is this change owing? Mainly to vivisection. It may seem a bold answer, but the corroborative testimony is copious and reliable. The writings and stories of such men as Jean Louis Petit, Hewson, Ambrose Paré, and Hunter prove beyond question that by means of experiments on living animals all their most momentous experiments were made. By carefully conducted amputations performed on dogs the best method of tying the great vessels and preventing excessive hemorrhage were found; an experiment on the antlers of a stag suggested some of the resources of collateral circulation; ligatures bound round the arteries of dogs confirmed the facts thus suggested. The successful accomplishment of a comparatively common operation, the excision of part of the intestine, was rendered possible by means of an experiment on a living animal. But it is in our own day that the real importance of vivisection has been made most apparent. The use of digitalis in strengthening the heart's action while decreasing the number of its beats; the efficacy of carbolic acid in preventing mortification and blood-poisoning; the value of strychnia in alleviating the night sweats which constitute such a painful symptom in consumption, are due to vivisection. It is worth while to touch upon the manner in which the effect of strychnia was discovered. Dr. Rokitsansky, while making experiments upon the action of drugs upon several animals, found that strychnia increased the force of the respiratory movements. He also noticed that when a dog was almost suffocated its paw

began to perspire, but that when the nerve going to the paw was severed the perspiration ceased. From this he argued that the secretion of sweat depends on the nervous influence passing through the nerves from the spinal cord to the skin, and that this action is excited when semi-suffocation renders the blood venous. But the injection, or administration of strychnia, by stimulating the respirations, caused the blood to be aerated, and the paws of the dog remained dry in spite of the nerve being undivided. A careless observer might have pronounced this series of experiments cruel and useless; nevertheless, it led to the alleviation of one of the most distressing symptoms of consumption.

It does not, indeed, need any profound acquaintance with medicine or surgery to detect the importance of vivisection. Without vivisectional experiments our knowledge of physiology would still be in a primitive condition; the mysteries, especially of the nature and functions of the nervous system, would remain unsolved, and as the nervous system regulates the action of the whole animal frame, and plays a most important part in many diseases, a thorough acquaintance with its nature and functions may be said to be absolutely essential to the physical welfare of the race. It is proposed to glance very rapidly at the methods by which some of the most striking phenomena of the nervous system have been ascertained. Meanwhile, however, attention may be drawn to the story of the discovery of the circulation of the blood.

The story is instructive, as showing how slowly man, unassisted by experiment, arrives at true conclusions in any practical science, and how easy it is for him to fall into startling errors. Four hundred years before the Christian era Hippocrates confounded the veins and arteries together under the common name of *phlebes*, the word artery, with which he seems to have been acquainted, being applied by him to the trachea, or wind-pipe. Aristotle distinguished the arteries from the veins, but maintained that the former contained air only, while the latter alone were in connection with the heart and conveyed the blood *into* the body. Galen asserted that the arteries held blood as well as air. Vesalius demonstrated that the two sides of the heart have no direct communication. In the time of Vesalius

as much horror was aroused by the dissection of a dead human body as is now excited by vivisection. Such dissection is, in our day, borne with considerable equanimity! Servetus pointed out that the blood passes through the lungs, and seems to have had some dim idea of the theory of the circulation. But not till the year 1628 was the true course of the blood definitely known. This year forms an epoch in the era of physiology, for in this year Harvey published his work, "*De motu cordis et sanguinis*," containing an account of his discovery of the circulation of the blood. In part this discovery was made by ordinary dissections; what is important for us to note here is, that in part it was made by means of vivisection and that without vivisection it would have been impossible to prove the theory decisively. For Harvey founded his conclusions not merely on the construction and connections of the heart, veins and arteries, but on the facts that, when an artery is divided blood issues from the end which is in union with the heart, and when a vein is severed blood flows from the end furthest from the heart: that when a vein is tied it swells on the side of the ligature distant from the heart, while the swelling takes place on the opposite side when an artery is confined. It is hardly necessary to add that these results would not have occurred in a dead body.

But it is in the domain of the nervous system that we owe most to vivisection. In all the higher animals, including man, the nervous system embraces two great divisions; the cerebro-spinal and the sympathetic. The former consists of the brain and spinal cord with the nerves which proceed from them to various parts of the body. The latter comprises a series of ganglia situated on each side and in front of the spinal column, connected by commissural filaments, and distributing nerves to the different vessels. The system, considered as a whole, causes sensation, regulates the movements, voluntary as well as involuntary, and influences assimilation, nutrition and secretion. It is of the utmost importance, therefore, that its powers and methods of acting should be thoroughly understood. Yet, until a comparatively recent period, little was known respecting the power and functions of the nervous system. As might be expected investigations made upon the dead subject added

very slightly to the fund of information, and it was not until the experiments of Sir Charles Bell upon living animals that anything like a clear notion of the functions of the cerebro-spinal system was obtained. He ascertained that if the trunk of a cerebro-spinal nerve be irritated all the muscles to which filaments of this nerve are distributed become agitated, and acute pain is felt. If, however, the anterior root only of such a nerve be cut across sensation in the parts below remains unaltered, but the muscles to which the fibres of the root go are paralyzed. If the posterior root alone be cut the reverse phenomena takes place; sensation is destroyed, but the power of movement continues. Cutting both roots destroys sensation and movement. If the lower part of the divided posterior root be irritated, neither sensation nor movement follows, but if the upper end be touched pain is experienced. If, on the other hand, the lower part of the severed anterior root be irritated convulsive movements occur in parts of the body below, but without apparent sensation; whereas if the upper part be pinched or pricked no motion is manifested. Experiments on the spinal cord itself prove that it is a great motor and sensory nerve when in connection with the brain, but that, when cut across, though it loses the power of conveying sensation, it still retains the ability to induce great and even elaborate movements.

The information thus obtained, respecting the functions of the spinal cord and its nerves, is not valuable merely as so much abstract knowledge, but is of the greatest practical importance in the understanding, and, therefore, in the prevention or alleviation of certain diseases. Epilepsy, for example, is probably caused by increased excitability of the cerebro-spinal axis. If this be so, acquaintance with the nature of the spinal nerves, and with the agents which exert an influence upon them, puts us in a position to attempt, with a fair prospect of success, the cure of this complaint. Stimulants or sedatives applied to a dead nerve will, it is clear, give us little satisfactory information as regards their action upon a living nerve. Experiments show that while certain stimulants act powerfully upon the motor nerves, the sensory nerves are still more readily acted upon by drugs and other agents. Having ascer-

tained this experimentally we are no longer left to guess-work—and often dangerous guess-work—but possess reliable means by which we can relieve or abolish pain. Thus, to vivisection we owe the power of alleviating many forms of acute physical agony; as well as the possibility of curing certain kinds of abnormal muscular energy. We owe this also—the ability to make a correct diagnosis in some cases which might otherwise prove extremely baffling. Transference of sensation from one nerve to another is not an uncommon occurrence. Pain in the knee-joint may point to something wrong with the hip, uneasiness felt in the limbs may indicate disease in the brain. Such experiments as those of Sir Charles Bell made it possible to trace the complaint from the part apparently affected to the real root of the matter.

But while Bell's discoveries made evident many of the functions of the cerebro-spinal system, the nature and powers of the sympathetic system were still obscure. In 1851, however, a remarkable series of experiments was begun by Claude Bernard, Professor of Physiology in the Collège de France, which resulted in dispersing much of the mystery which had hitherto surrounded the action of the latter system. Taking a living rabbit, Bernard divided the sympathetic cord in its neck. Immediately on the side in which the chain of ganglia had been severed, the blood-vessels of the conjunctiva (the mucous membrane of the eyeball and eyelid), and of the semi-transparent structure of the ear became dilated, the skin being reddened by the increased flow of blood, and the temperature of that part of the head and face rose considerably. The other side remained normal in its conditions. Galvanism applied to the upper end of the severed cord reversed all these effects. The ear and conjunctiva became pale, and that side of the head grew cold: in fact, it was found that by galvanizing the sympathetic cord sufficiently, the circulation in those arteries to which branches of the nerve are distributed could be almost entirely arrested, and the parts of the body around lowered to a temperature but little above that of a corpse. This result was so marked that Bernard termed the sympathetic the "Frigorific nerve." He established the fact that this nerve so far controls the muscular coats of the arteries,

that stimulation of the nerve will cause powerful contractions of the arteries, and consequently, decrease of vital energy, through diminished flow of blood, in all parts of the body to which these arteries proceed. Pursuing his experiments, Bernard found that the great glands secrete only as they are governed by the nerve force coming from the nerves related to them. Dividing a branch of the pneumogastric in the neck of a dog, he noted that the stomach became pale, its walls relaxed, and the formation of the gastric juice arrested. Stimulating the nerve at once increased the energy of the stomach and the secretion of the juice.

The practical importance of these discoveries can hardly be overestimated. Diseases which are caused or aggravated by superabundance of blood in the vessels controlled by the sympathetic, or by the abnormal activity of the sympathetic itself, may be cured or mitigated by drugs or appliances which, properly employed, stimulate this great nerve, or, on the other hand, exercise a sedative effect on it. When we add the investigations which determined the functions of the pneumogastric nerve in directing the digestion, the action of the heart and lungs, and in affecting nutrition generally, we have an amount of knowledge respecting the nervous system which enables us to contend intelligently, and often successfully, with some of the most deadly disorders. If, as seems probable, such a fatal complaint as cholera be caused by too much blood in, and too much activity of the spinal cord and sympathetic nervous centres, we hold, through the vivisectional experiments of Bernard and others, a possible means of curing it. Certain glands of the body appear to be too active; certain arteries seem to be abnormally contracted: if we can control the nerves which, in their turn, control these glands and arteries, we may arrest the deadly progress of the disease. As a matter of fact, methods of treating cholera, founded on the discoveries of Bernard, have been adopted with remarkable success. But this is not all. Besides distinctively nervous disorders—such as neuralgia—colds, inflammation of the lungs and abdominal viscera, possibly influenza, sea sickness, and several other common complaints are brought about, in a greater or less degree, through and by the nervous system.

Treatment of these complaints before the investigations of vivisectionists was haphazard, and devoid of calculated method: medical men were feeling about in darkness and uncertainty. Now the treatment is scientific and methodical, and, it need scarcely be said, has gained greatly in efficacy. The stimuli which will act most rapidly and vigorously upon the nerves are known as they never could have been known before the era of vivisection, and their proper application is determined by definite, and, so far as discovery has proceeded, accurate knowledge.

We may now turn to another aspect of the matter. Nearly two hundred and fifty years ago Robert Boyle, in his "Essay on the Pathological Part of Physik," wrote: "He that thoroughly understands the nature of ferments and fermentation shall probably be much better able, than he that ignores them, to give a fair account of divers phenomena of several diseases (as well fevers as others) which will, perhaps, be never properly understood without an insight into the doctrine of fermentations." This sentence is a prophecy; but it has been fulfilled only within the last thirty years, and the fulfilment of it is chiefly owing to experiments upon living organisms. The air is full of minute floating germs, which, falling upon an open wound, or being taken, by the breath or with the food, into the system, produce putrefaction or disease. Many of the most serious epidemics are due to these bacteria: it is possible that four-fifths of all diseases will ultimately be traced to their influence, exercised directly or indirectly. But the action of the bacteria is essentially that of a ferment. As in fermentation the germs, falling upon suitable soil, grow, and multiply themselves indefinitely. For example, the small-pox virus may be considered a seed; it sows itself, or is sown in the same manner as yeast, and, like yeast, it grows and spreads itself. The tiniest atom of the virus of small-pox may thus infect the whole human body. For some time the action of disease germs was suspected, but investigations were conducted in such a manner that the experiments were vitiated, the observer generally working in an atmosphere so laden with opposing bacteria that it was impossible to attain any accurate results. Pasteur succeeded at last in isolating the different

germs, and in establishing the fact that from a certain organism a certain disease, and no other, resulted. It may be taken as proved that fermentation—that is, the action of living ferments, entering the body, and there growing and spreading—is at the root of the vast majority of epidemic diseases. Possible methods of arresting this fermentation—of checking the fatal growth of the bacteria, have been discovered through vivisection, and, so far as can be seen, could not have been discovered in any other way. For, to battle successfully with any ferment, we must know the nature of the soil in which it will grow, and the exact way in which it propagates itself when sown in this congenial soil, and it seems evident that these facts can be ascertained only by observing its action in the living body. An example may be interesting.

In the year 1850 two French physiologists, Davainne and Rayer, observed in the blood of animals, which had died of splenic fever, minute organisms resembling transparent rods, and it occurred to the former that the disease might result from a fermentation in the blood caused by these rods. But meanwhile it was pointed out that the contagion of splenic fever often lingered for years in the same locality and that this could not happen in consequence of the action of the rod-like organisms, because it was found their infectious power disappeared in a few weeks. Nevertheless it was ascertained that between the organisms and the fever there was undoubted connection, and it was conjectured that the contagion must exist in two forms. At this time there was another observer investigating the subject of splenic fever. A country doctor working quietly in an obscure district in Germany, whose name, then known to very few, has since become world-famous—Dr. Koch—was destined to find out the true nature and development of this fatal fever. Patiently watching the solution containing the rods, placed under his microscope, he noticed that at the end of about two hours the rods began to lengthen considerably, and, after some time formed filaments fifty to a hundred times longer than the original rods. Still watching, Koch perceived little specks or dots appearing in the filaments. These dots increased rapidly in number, extending from end to end of the organisms which encased them. At last

the filaments fell asunder and their places were taken by long rows of the tiny, seed-like bodies. Koch proved that these seeds constituted the contagion of splenic fever in its persistent form. But how did he prove this? There was but one method by which he could do so. By experiments on living animals: in other words by vivisection. By operations performed on rabbits and mice he was able to test the activity and persistence of the contagion. Inoculating mice with blood fresh from an animal which had died of splenic fever he found the mice always died of the same disease within thirty hours. He then dried some of the infected blood in which, however, the spores, or seed-like bodies had not had time to develop, and, by experiment, he found that this blood, or, rather, the rods in it, lost all activity in less than six weeks. Taking next blood in which the spores had fully developed, he dried it, kept it for a long period and subjected it to a number of severe tests. He reduced it to dust; he wetted it; he dried it again; allowed it to remain in putrid matter and put it under various other equally unfavorable conditions. At the end of four years he inoculated some mice with it, and found that in every case the inoculation proved fatal. The contagion was as active and virulent as the contagion from the perfectly fresh blood. He thus determined that while the rod-like organisms carried the infection during a short time, the spores conveyed it with unabated malignancy, after many years. It is worthy of remark that only by inoculation was it possible to discover this, for mice eat, without injury, the spleen of an animal which has died of the fever.

The first step toward the cure or prevention of a disease is a knowledge of its cause and of the nature of its cause. The nature of any contagion being understood, the next step, the movement which baffles or destroys it, is comparatively easy. It is no longer a battle in the dark with an unseen and unknown foe, but an intelligent and calculated effort to arrest the progress of an adversary, the habits and genius of which are known. It is hardly an exaggeration to say that, owing to the investigations of Koch, the ultimate extirpation of the scourge of splenic fever is absolutely assured. What this means may be seen by a glance at one set of figures.

In a single district of Russia and in less than three years more than fifty-six thousand horses, cows and sheep, and five hundred and twenty-eight human beings perished from splenic fever; one of the most deadly and agonizing diseases by which either man or beast is liable to be attacked. The mortality which, from first to last, this disease has caused is beyond calculation.

Thus, then, it would seem that the charge of uselessness made so often and so recklessly against vivisection falls to the ground. The more serious charge of immorality remains. Unless, indeed, the accusation of inutility can be sustained it is a rather dangerous charge to make, for the retort is possible, that if a practice be beneficial to the greater number of people it may be immoral to *abstain* from that practice. Nor will the phrase so easily uttered, "doing evil that good may come," touch the earnest vivisectionist. It will only suggest a curious confusion of thought on the part of the speaker concerning the nature of evil. But those opposed to vivisection decline, in many cases, to accept, or even to hear, the plea of utility. They declare they refuse to admit the question whether any possible benefits derived from vivisection make it right. They assert they oppose the practice purely on religious and moral grounds, and lay down as an axiom, that the torture of sentient creatures is a sin; but omit to add any qualification as to the method or reason of what they term torture. By this class of opponent vivisection is defined as the cutting up alive, flaying, starving, baking, boiling, stewing, and creating all manner of gangrene and other diseases in the most sensitive animals; and this definition is made the ground of passionate and eloquent appeals to the emotions. The public, instinctively opposed to cruelty, and ignorant of the true state of the case, accepts the definition, and responds to the appeals. It is the old story of zeal for God, but not according to knowledge.

The popular definition of vivisection is singularly misleading. Etymologically speaking, boiling, baking, and stewing are not vivisection at all; but, putting aside what might be styled a verbal quibble, and granting that such things may be included under the general head of vivisection, we find a system presented to us

which embraces all the worst atrocities ever committed in continental laboratories, and which practically excludes such experiments as those of Pasteur and Koch. Boiling and baking, which, to say the least, are comparatively rare, are emphasized, while those experiments which form the staple of the science—the injection with the hypodermic needle, the operation while the subject is under the influence of anæsthetics, or the administration of some drug which does not cause any extraordinary agony—are silently passed over, or, at best, barely alluded to. This is surely not a fair way in which to represent the case. Taking as a sample a report published some five or six years ago, we find the total number of experiments performed in this country was about eight hundred. In all of these, except those carried out under special certificates, the animals were rendered insensible during the whole of the experiment, and were not allowed to recover consciousness. The number of those which seem to have suffered appreciable pain is estimated at forty, and these, for the most part, frogs, creatures of a low condition of sensibility. In a return lately issued the number of experiments stated to have taken place is considerably larger, and those performed without anæsthetics greater in proportion; but examination shows that many of these experiments were comparatively painless, and that many more were performed on animals in which sensation is not highly developed. There is, indeed, no doubt that much of the vehemence with which vivisection is assailed arises from an honest confusion of ideas. The science includes not only the cutting up and laying open of animals, but also the cultivation of disease germs by inoculation; and the investigation of the effects of various drugs upon the system. Any estimate of vivisection to be fair must take into account the whole of this field. The anti-vivisectionist usually thinks of and attacks the former part only, and even in this part he is too prone to select the worst instances. His case, based on these instances, is generally in the condition of an inverted pyramid; but the inversion is not perceived by the majority of those to whom he appeals, nor, perhaps, perceived even by himself, for "they are dangerous guides, the feelings; he himself is not exempt."

Briefly summed up the arguments of the anti-vivisectionists appear to amount to this. That, even granting that occasionally some good results have been gained by means of vivisection, the pain inflicted is altogether out of proportion to the results achieved: that, however, no results can justify man in inflicting excruciating agony upon any living creature, for, in so doing, he outrages one of the highest moral laws and commits an unpardonable sin; besides which the practice tends to debase the mind and harden the heart, and it is of far more importance that the mind should be pure and the heart tender than that a cure should be found for any bodily disease. To which the vivisectionists reply: We deny that the pain inflicted is out of proportion to the results achieved; on the contrary we assert (and we challenge our opponents to impugn the assertion) that the pain is trifling in comparison with the benefits conferred. A minority must always suffer for the majority, and, so far from outraging any ethical law by sacrificing a certain number of animals, we believe we would be guilty of a serious moral wrong if we abstained from this sacrifice, since by our experiments we may give relief to millions of men and beasts. While to stand idly, watching the ravages of disease, which, by certain measures, we might prevent or diminish, would certainly suggest and induce a condition of callousness and mental degradation. We have no right to withhold from suffering humanity any good thing which it is possible to give it. Such, compressed to the smallest compass, seem to be the chief arguments used by both sides. For the rest we have illustration and example. It is somewhat instructive to note whence the various illustrations and examples are drawn. For the most part the vivisectionists dwell upon the pathological side of the question; while the anti-vivisectionists love to linger over those details which present vivisection in the most repulsive light; and indulge in fervid appeals to the emotions. They regard the matter from what they consider an essentially moral standpoint. With them it is not a question whether experiments teach science, or assist its progress, but whether the practice of vivisection outrages the principle of mercy; though it seldom appears to occur to them that the mercy

which shrinks from inflicting a comparatively small measure of pain in order that it may be able to relieve a large measure of suffering is a very doubtful kind of mercy. The deepest fact in their particular system of morality is physical pain; and, in regarding the bodily agony of a certain number of animals they seem blind to the mental and moral anguish wrought through disease in millions of men and women: the anguish which makes desolate many a household and causes many a heart to doubt the existence of any overruling Providence.

The strong and capable ought to aid and protect the weak and helpless. Doubtless. But such an argument cuts both ways; for the weak and helpless among mankind ought to be aided by the capable, and, if a practice enables a man to save his fellow-men from misery, that practice assuredly implies a protection of the feeble by the strong. But there is a point of honor. Man has no right to take all from animals without giving them anything in return. This is mere rhetoric, and, unless those who use it be vegetarians, remarkably bad rhetoric. Animals gain from experiment as much as man. Splenic fever is mainly confined to cattle.

Much, in fact, of the statement and argument of anti-vivisectionists is as misleading as if one were to point to a man who had had his leg cut off, and make the circumstance a text for expatiating on the brutality of doctors, entirely forgetting to add that, had his leg not been taken off, the man would have died. That shocking atrocities have been committed in the name of vivisection few physiologists will seek to deny. From motives of morbid curiosity animals have been put to extreme and lengthened torture, and no words can be strong enough to condemn such practices. The assertion that the mind requires nourishment as well as the body cannot in the least palliate or excuse such conduct. But it is obviously unfair to argue, or imply that, because certain immoral acts take place under a system, the whole system is therefore immoral. Such an argument, if universally forced to its legitimate conclusion, would leave no system untouched. By this kind of reasoning, all novels should be suppressed because some are most unedifying; all theatres should be closed because plays of a vicious tendency are placed on the boards

of a few. Christianity itself would not escape, for acts the most immoral have been and are being done in the name and under the authority of that religion. In any desire which they have to regulate vivisection, to bring it under proper control, or to put down those atrocities which tend to disgrace the pursuit the anti-vivisectionists are worthy of much sympathy; but, when they denounce the whole system as base and iniquitous, the physiologist can only shake his head and turn away. "No greater calamity," says Professor Tyndall, speaking of such researches as those of Koch and Pasteur, "could befall the human race than the stoppage of experimental inquiry in this direction."

A great moral force is working on behalf of the physiologists. Suffering and death are on every side of them, and if, by any fair means, they can alleviate the one and retard the other they have no right to neglect these means. They are, so far as their power extends, debtors to humanity, and they would act an immoral part if they declined to make any legitimate effort to discharge this debt. This the anti-vivisectionists will not see, or will not acknowledge. They are not satisfied with merely denying the fairness of the means but they deny the morality of the whole science, not perceiving that in so doing they place themselves in a serious dilemma. For none, save the most bigoted, would deny the lawfulness of putting an animal to death for some useful purpose. Few would refuse sanction to the infliction of a certain amount of pain if the object thus gained were good. The butcher is counted a respectable member of society though he puts many animals to death, and some of them by a method not essentially painless, because he kills them for food. If he were to slaughter them merely for amusement, or through sheer wantonness, he and his actions would at once become immoral. But if a single butcher were to do this it would not lead any rational person to assert that the trade was an immoral one. The fact of one, or a hundred physiologists experimenting through curiosity, or from an entirely selfish love of knowledge, does not render vivisection immoral if it can be shown that the science, in general, tends to good. It is, indeed, conceivable that vivisection might develop into something ethically wrong, but with the safeguards assured by

the control of the State on the one hand, and, on the other, by the fact that men of science are not as a rule unnecessarily brutal or wanton, and have some regard for virtue, concrete as well as abstract, this does not seem likely to be an immediate danger.

Meanwhile the question remains—and herein we touch the kernel of the matter in debate—if men conscientiously believe a certain practice to be productive of good to their fellow-men, are they, or are they not, guilty of an immoral act if, with a due attention to the proportion between the benefit conferred and any pain inflicted, they pursue this practice: and is such a pursuit, under such conditions, likely, or not likely, to debase the mind and blunt the sympathies? The anti-vivisectionists have, on their own showing, to face this question; and, in attempting to answer it, they have to consider not merely the utility of vivisection, which many of them, with sufficient hardihood, deny, but the known characters of those who advocate and perform experiments on living animals. One thing is certain, that exaggeration and misrepresentation will not, in the end, serve the cause the opponents of vivisection have at heart and may bring upon them the unpleasant retort, that they resolutely, if ignorantly, have endeavored to throw obstacles in the way of a scientific movement intended for the relief of suffering, and the physical, perhaps the moral welfare of man.

When anti-vivisectionists are able to demonstrate how such discoveries as those of Sir Charles Bell and Claude Bernard respecting the nervous system could have been made without vivisection, or when they prove the uselessness of these discoveries, they will be entitled to a respectful hearing. When they can suggest a method, other than experiment on living animals, by which the action of the motor and sensory spinal nerves, and the functions of the sympathetic system, with all the important issues depending on this knowledge, might have been ascertained, they will occupy a comparatively strong position. But until they are prepared to point out this better way, they stand upon very slippery ground, and mankind has a right to say to them: "You have made sweeping assertions, but where are your proofs? You have preached much and vehemently, but what have you done?" The claim of

the talkers to hold back the doers is generally a dubious claim, yet one which is continually obtruded, and sometimes in a very disagreeable fashion. "The obloquy of newness" has pressed heavily upon some of the best benefactors of mankind. Harvey, having discovered the circulation of the blood, was hailed vagabond and quack. Ambrose Paré, proposing the ligature to tie the great artery after amputation of the limb, was denounced as a fool, boiling pitch being an easier and more heroic method. Groenevelt, prescribing cantharides as a medicine in cases of dropsy, was promptly clapped into prison. Jenner, advocating vaccination, was laughed at by the good-humored and ostracized by the less tolerant. The vivisectionist of our own day meets with but slightly better treatment from a considerable section of the community. Vivisection is denounced by thousands whose hearty approval is given to fox-hunting, attended though it is by great and useless cruelty, and who, in their generous liberality, apply the term "sport" to pursuits the main feature of which is the indiscriminate slaughter of multitudes of helpless creatures. "I refuse to entertain the question whether the benefits of vivisection—be they great or be they small—make the practice right." The humanity, one is tempted to add the common sense, of the anti vivisectionist who could write such words as these is, in deepest truth, open to serious doubt; and the words appear to define pretty accurately the position of the majority of those opposed to the practice. If anti vivisectionists, instead of talking greatly about their conscience and following its dictates impulsively, were occasionally to ask themselves whether their conscience was leading them in the right direction or not, they might escape the commission of some serious mischief. If, instead of crying out for the total abolition of vivisection, they were to direct their attention to the suppression of needless cruelty, and of experiments performed for the mere gratification of curiosity, they would occupy a more humane and more rational position than they do at present, and would, moreover, enlist many of the most eminent of the physiologists on their side. A glance at the rules adopted and signed by the Presidents of the Colleges of Surgeons and Physicians, and by the leading mem-

bers of the medical profession in the United Kingdom, will leave little doubt on this point. These rules provide that no experiment which can be performed under the influence of an anæsthetic ought to be done without it; that no painful experiment for the mere purpose of illustrating a fact already known is justifiable; and that, whenever it is necessary to make a painful experiment, every means to ensure success ought to be taken, so that the pain inflicted may not be wasted.

Reading these rules, remembering that, on the whole, they have been faithfully kept, and observing the good results which have unquestionably followed many of the experiments undertaken, the anti vivisectionists have rendered themselves liable to the grave charge of having endeavored to create a moral feeling against vivisection by exaggeration, by presenting irrelevant matter and side issues, as if they constituted the main issue, and by dwelling persistently upon certain atrocities which have been committed. How grave a charge this is appears when we consider the real object of vivisection and the success which, so far, has attended the effort toward this object. To forbid vivisection entirely, and it seems nothing less will satisfy its opponents, would be at once a wickedness and a blunder; while, even to hamper its practice seriously by a multitude of petty and irritating restrictions, would be a crime against humanity and the race of animals. After all, the State has at any time the power of enacting laws for the suppression of vivisection, if it can be demonstrated that it has degenerated into license. But until this can be conclusively proved and until it can be clearly shown that experiments on living animals are useless, attempts, however well meant, to excite feeling against physiologists and efforts to stop their investigations become distinctly immoral and may be fruitful of disaster. No pictures, however vividly drawn; no rhetoric, however passionate, ought to be permitted to weigh against facts. No science comes so closely home to us as the science of medicine. It is yet in its infancy, and they are guilty of a grievous offence who endeavor to retard its growth, holding, as it does, the promise of almost infinite possibilities. Investigations which offer even the hope, and many of those undertaken offer much more than mere hope, of ex-

tirpating such awful diseases as splenic fever, consumption, scrofula, cancer, are among the noblest to which man can devote himself. And, though their immediate effect may concern the body only, their ultimate effect extends into a region essentially moral, the region of those feelings which are wronged and lacerated by the sight of suffering, loss, and death. Pain and disease force us to search for the means of conquering or avoiding them.

This search is laid upon us as a high moral duty, which we may not evade without guilt. Vivisection aids us to fulfil this duty, and those who practise it conscientiously and with a due regard to the relation between the result and the means of attaining that result, are surely worthy of all encouragement and honor, instead of the obloquy and suspicion which are so often their lot.—*Westminster Review*.

THE LATEST ELECTRICAL DISCOVERY.

BY J. E. H. GORDON, M. INST., C.E.

ON Wednesday, the 3d of February, the Royal Institution was crowded with one of the most critical scientific audiences in the world, who were held spellbound for more than two hours while Mr. Tesla gave an account of his discoveries. Mr. Tesla is a young electrician born at Rieka, on the border of Montenegro, and now domiciled in America. The interest of the lecture lay not in the beautiful experiments with which it was illustrated, nor in the actual facts put forward, but in the hope which it held out that we may now draw back a little farther the veil which hides one of the most fascinating mysteries of nature, namely, the relations between light and electricity, and between matter and motion.

The tendency of modern science is to remove day by day the barriers between its different branches. Our views of the phenomena of light and heat, of electricity and magnetism, and even of matter and motion, are rapidly merging into one general theory of molecular physics, which is perhaps best expressed by the vortex theory of Sir William Thomson.

According to this theory the whole of every part of space is filled with a fluid called ether, almost infinitely thin, and almost infinitely elastic. The historic experiments of Faraday interpreted by the mathematical researches of Clerk Maxwell have demonstrated almost beyond doubt that the same ether whose waves carry light and heat from the sun and stars to the earth, also carries the waves of electric and magnetic induction which, as the daily experiments at Kew Observatory show, follow each outburst of solar activity.

Sir William Thomson holds that all that which we know as matter consists of vortices or whirlpools of this ether, which, from their rapid rotating motion, resist displacement, and therefore show the common properties of hardness and strength in the same way as a spinning top or gyroscope tends to keep its axis in a fixed direction. But whether the molecules or particles of what we know as matter are independent matter, or whether they are ether whirlpools, we know that they keep up an incessant hammering one on another, and thus on everything in space.

Professor Crookes has shown that the forces contained in this bombardment are immensely greater than any forces we have yet handled, many millions of horse power being contained in an ordinary room. Owing, however, to the forces being in every possible direction they neutralize each other, and no result of them is perceivable to our senses; but if ever we discover how to so direct their courses as to send the majority of them in the same direction, we shall have at our disposal forces as much exceeding any we are now acquainted with as the blow struck by a bullet exceeds the force required to pull the trigger of a gun. In fact, as Mr. Tesla put it in his lecture, "We shall then hook our machinery on to the machinery of Nature." It is because they hold out to us a hope, however distant, of some day so guiding the ether storm, that the experiments of Nikola Tesla are of such transcendent interest and importance.

Professor Crookes, in his experiments on "radiant matter," has given us the first hint of a method of directing what,

for want of more exact knowledge, we will call the molecules of matter. With the appliances at his command, however, he was unable to impart any great change of direction, but he succeeded in making that change manifest by reducing the disturbing forces acting against his directing force. In other words, he pumped out from glass bulbs and tubes nearly all the air or other gas that they contained, and the comparatively few particles left were then free to travel in any course imparted to them without much change caused by collision with others. This special direction was imparted by means of electricity, and gave us the beautiful phenomena of phosphorescence and radiant matter which are now so well known in these experiments.

By means of suitably shaped terminals a stream of molecules is focussed on a given point. If a piece of carbon or platinum is placed at that point it becomes white hot under the bombardment, from identically the same cause which causes a sheet of flame to appear when a cannon shot strikes an iron target. If a ruby or other phosphorescent material is placed there it glows with its characteristic color, and if a little delicately balanced vane or windmill is placed so that the stream is directed on one side of its fans it rapidly revolves. The forces available in these experiments were, however, almost indefinitely small, being as it were merely flying spray from the great torrent into which we have not yet been able to penetrate.

We now come to the advances made by Mr. Tesla.

In all the above experiments the electricity by which the directing force was imparted to the molecules was electricity of a comparatively slow alternation period, namely, electric currents oscillating about 80 to 100 times per second. It was as if we had tried to ventilate a room by causing a man to walk slowly through it with an umbrella. He would undoubtedly move the air, but would move it so slowly that ordinary methods would be insufficient to enable us to perceive its motion. In order to cause a rush of air we must put up a rapidly moving fan or other suitable machinery. Mr. Tesla, seeing this, abandoned the ordinary dynamo, which, as we have already noted, gives about 80 alternations per second, and the ordinary

induction coil, which gives about the same number, and boldly constructed a dynamo which gives 20,000 alternations per second, and by connecting this to suitable condensers he multiplied its alternations until they reached 1,000,000 or 1,500,000 per second.

Then at once an entire set of new phenomena appeared, and the experimenter entered a region of mystery and hope. One of the first things noticed was, that either because these vibrations are too rapid to excite corresponding vibrations in the nerves of the body, or from some other cause, no shock is felt from the current; and that though an ordinary current at 2000 volts will kill, yet this current at 50,000 volts cannot be felt at all.

It was also found that the vibrations keep time in some unknown way with the vibrations of solid matter. Vulcanite is one of the best insulators known, and will entirely stop any ordinary current or discharge; but the stream of sparks between two poles with this current pours through a thick sheet of vulcanite as easily or even with greater ease than through air. It does not perforate it in any way, but passes through it as light passes through glass.

All the "Crookes" phenomena of radiant matter are almost indefinitely increased; it is the blow of mitrailleuse bullets compared to the blow of an air-ball thrown against the wind. The forces can be directed for a considerable distance through space without the aid of wires. Electric lamps light easily when attached to one single wire, and require no return conductor; and, more wonderful still, if metal plates are fixed on the roof and walls of a room and connected to the terminals, the whole atmosphere of that room, whether it be ether or whether it be particles of common matter, is thrown into a state of storm and agitation which can be at once made perceptible by bringing into the space tubes or globes from which the air has been partially exhausted. Such tubes though without any metallic connections yet glow and throb as if powerful currents of electricity were being sent through them from an ordinary induction coil.

A "Crookes" radiometer placed near a metal conductor from which neither spark nor glow is perceptible yet rotates as if it were placed near a lamp or heated body,

but rotates in the wrong direction, and, last of all, a true flame burns in which nothing is consumed.

When the discharge issues from a suitable terminal it has the appearance and roaring sound of a gas flame burning under too high a pressure, and gives off a considerable heat; to use Mr. Tesla's words again: "This is not unexpected, as all the force and heat in the universe is due to the falling together of lifted weights, and the same result is produced whether these weights have been lifted apart by chemical energy, and rest in the form of oxygen and hydrogen ready to combine chemically, or in the form of mechanical energy of moving molecules directed by the electric current."

On the same table, on which Mr. Tesla's experiments were shown a few days ago, there swung, in the year 1834, a delicately balanced galvanometer needle, under the influence of the first induction current, produced by the genius of Faraday. The force available to move it was very small, probably not greater than the forces lighting Mr. Tesla's tubes, yet that force has now developed one of the greatest industries of the world. It lights millions of lamps in London and elsewhere, in America it drives cars on thousands of miles of railways, and will soon distribute the power

of Niagara Falls to the inhabitants of the neighborin States. May we not hope for some such development of the new discovery, and that we shall some day harness to our machinery the natural forces, which from the beginning of time have literally been slipping through our fingers?

Should the application of Mr. Tesla's results ever fulfil the bold dreams of scientific imagination, we shall see a social and political change at least as important as that caused by the railway system or the electric telegraph.

Most manual labor will become unnecessary, as unlimited power will be available at every man's hand. Engineering works will be able to be carried out on a far greater scale than has yet been even contemplated, and doubtless a corresponding era of material prosperity will set in; but, whether these dreams are ever fulfilled or not, few who attended Mr. Tesla's lecture will forget the possibilities which seemed to open to their minds when they saw a living man standing in the midst of the electric storm, receiving unharmed in his hands flashes of veritable lightning, and waving above his head a tube, through which the very life blood of creation pulsed, in waves of purple fire.—*Nineteenth Century*.

THE STRANGE STORY OF BEETHOVEN KOFFSKY.

I HAD known Beethoven Koffsky for some years, and had always been interested in him and his marvellous gift of music. He was a curious, half-starved-looking creature, jerky and voluble of speech, addicted to gesture, sensitive, enthusiastic, ridiculously vain, and as guileless and easily duped as a child. This last characteristic accounted, perhaps, for his never getting on, in spite of his genius. He was a composer—and a very fine composer, too—but he seemed quite unable to impress publishers with a right view of his talents. Occasionally he would get a song published, or a tuneless and inferior piano-forte piece, but after a day or two of affluence he would always sink into his habitual slough of poverty. Koffsky's mother had been an Englishwoman, and from her he told me he had inherited his singular genius and passion for music; it was she

too who had insisted on bestowing upon him the somewhat ambitious name of Beethoven. Koffsky had adored his mother, and could never speak of her without tears. So far as I could learn, she had never known a happy or a comfortable moment from the day of her runaway marriage with Koffsky père, and I was quite glad to learn that the poor creature had been at peace now for many years under the scanty earth of a crowded London graveyard. Koffsky rarely mentioned his father, and all I had ever gathered about this parent was that he was a Pole and still lived in some remote corner of his native land, whence his son evidently did not care to unearth him. I had my own idea of what kind of man the elder Koffsky had been, and privately thought that it was from him Beethoven had inherited his long, matted hair, his wild,

brilliant eyes and his rooted aversion to soap and collars. Not that I blamed Koffsky for a constitutional leaning toward dirt; he was a Bohemian, and dirt is as dear to the Bohemian as his tub to the military man or his club to the swell.

Of course Koffsky was married: he was just the kind of incompetent, improvident, incapable kind of man who was bound to marry and burden the nation with a family of paupers. I was very sorry for his wife. She was a poor little nursery governess when Koffsky first met her, with five disagreeable children to take care of. I suppose she thought any life would be preferable to the one she was leading, and Koffsky, though grimy, was a good-looking man, and extremely interesting and even attractive when considered in the light of a musical genius. Once married, I am not sure that Mrs. Koffsky continued long to think that she had improved her position. Mary was a pretty, delicate-looking little creature, and the life she led was too hard for her.

In the course of four years the Koffskys had as many children, and the wife's hands were very full. I often dropped in at their miserable little lodgings, and it was a pitiful sight to see poor little Mary struggling with those four singularly unmanageable children. She worked hard to bring them up in her own ideas of cleanliness, but their Polish blood and their father's example were too much for her—soap and water held no place in the young Koffsky's scheme of life, and even the baby kicked and screamed when the long-suffering mother endeavored to wash its face.

"The children are too much for me, Mr. Blencowe," said Mrs. Koffsky ruefully; "there's too much Beethoven in them."

She was right; there was decidedly too much Beethoven in them.

And yet Koffsky was a very good fellow: he was devoted to his wife and children, and would do anything for them—short of getting on in the world. That was too much to ask of him. The poor fellow was a born dupe—not a day passed that he was not cheated by somebody. But what a genius he was! He would improvise by the hour together, on either violin or piano, weird music that made one's blood creep and curdle—or at least I could imagine that the blood of a less

prosaic person than myself might have gone through that singular process. Then Koffsky became a changed being: his dark hair thrown back from his pale brow, his wild eyes shining with a curious light of passion and inspiration, his whole frame quivering with emotion—he seemed no longer Koffsky. At such moments music claimed him entirely for her own; he forgot the world he lived in and appeared to ignore his nearest and dearest. I had an example of this one day when I went to see the Koffskys. The eldest child, an urchin of five years old, with his finger in his mouth and his pinafore in a state of dirt only to be achieved by a Koffsky, opened the door and pointed mutely upstairs. I skilfully avoided colliding with one child who was sliding down the banisters, by a desperate leap managed to clear the baby which was crawling up the stairs, and arrived safely in the little sitting-room. At night this became the children's sleeping room, but during the day Mrs. Koffsky sewed there and always kept it neat and tidy, in the teeth of what difficulties Heaven and herself could alone know. Koffsky was seated at the piano (the one article in that household that had never visited the pawnbroker's), hammering at a tune which he repeated over and over again with every possible variation of chord and key. He took no notice of me, and when I wished him good day he merely rolled vacant eyes upon me and went on with his composition. I addressed him once or twice with the same unsatisfactory result. I was in the middle of a last effort to rouse him, when Mrs. Koffsky came in, furtively smoothing her hair and trying not to look as though she had just slipped into a tidy gown.

"It's no use speaking to him, Mr. Blencowe," she said, nodding toward the rapt Koffsky. "He's hammering out a bit of his opera—he's mad after that opera. He's in it now—he's not here; it's no more use talking to him than if he were dead and buried."

"Don't you find that a trifle trying?" I asked.

"I do indeed," said the poor woman. "Beethoven lives for music—not for me. He lives in a dream: if I cook him a nice dinner he doesn't know what he's eating, or if his mutton's hot or cold. Beethoven is a genius, but he's a terrible man to have for a husband. He's worse than usual

now, for his opera's nearly finished, and he thinks it will make his fortune."

"What do you think?" I said.

She smiled sadly.

"It's a beautiful opera, and I daresay it will make somebody's fortune—but not Beethoven's."

"Do the children inherit his talents?"

"I hope to God they do not," she said solemnly. "I had rather see my children dead and in their coffins than have them musicians like their father. Better they should be dead and at peace than that they should suffer as my poor Beethoven suffers. He never rests, he rarely sleeps, and this dreadful composition when he has a fit of it, shatters him like an illness. Does he look like a happy man?" she asked, pointing to the dreamer, who was still torturing the keys into unwilling harmonies.

He certainly did not: there were great drops of perspiration on his forehead, and his lips were drawn and livid.

"He does not know we are here," said Mrs. Koffsky; "I will show you how lost he is to everything but music." She touched his arm and called him gently by name. He looked at her with the same vacant glare he had bestowed on me and shook his head impatiently. "Beethoven," she repeated, with a little tremble in her voice, "won't you speak to me?"

This time he did not look at her: his long, thin fingers never ceased their voyage up and down the keys.

"Go away," he said; "I don't know you—I don't want you—go away—you disturb me."

"You see?" said Mrs. Koffsky sadly; "it is a little hard, is it not?"

A fortnight later, as I sat in my rooms, ploughing away at common law, and feeling more sympathy with the breakers of laws than the makers of them, Koffsky darted in, in a wild state of excitement.

"What's up?" I asked, glad of any interruption in my uncongenial task.

"I have finished my opera," he cried, "at last! At last! And I have succeeded gloriously. I have almost overtaken my ideal! I have put the music of my dreams on paper. Listen." He sat down to my piano. "My libretto is founded on the life of our glorious patriot, Kosciusko. This is his battle song—his death song."

He struck a few stirring chords and

burst into a wild melody. It was a fine song, and Koffsky's rich baritone voice did full justice to the music.

"There—isn't that grand! isn't that glorious!" he cried, turning his rapt face toward me. "It is Beethoven Koffsky's masterpiece."

I couldn't help smiling at the man's naïve vanity, but he was quite right—it was grand music. I told him so, and his pale face glowed with pleasure. He seized my hand and shook it violently.

"Ah," he cried, "I knew you were a musician at heart! I knew you had a soul under all your English starch! *You* can appreciate me! *You* know genius when you see it—when it speaks and cries to you! *You* know that Beethoven Koffsky is a genius!"

His words and his extravagant gestures were laughable.

"Ah, you smile!" he cried. "But why should you smile? What I say is true—it is not my vanity—it is God's own truth; and why should I fear to say it? My music is beautiful: if I could but get it heard, all the world would know that it is beautiful—mine would be a name for all time!"

He started up and paced the room wildly.

"But I cannot get it heard!" he cried, in heart-broken accents. "My beautiful opera that would delight the world, no one will look at it, no one will take it! it will never be heard—never! I am poor and unknown—no one will understand me—no one will believe that I have music in me, and my darling opera, my soul's child—it will perish—it is born only to die—to die unknown, unloved! Oh my God! it is hard to bear!"

He covered his face with his hands, and I could see the tears start between his thin fingers. If ever I was sorry for a man that man was Beethoven Koffsky. I tried to comfort him; I suggested that his opera might yet be taken, but his present mood was strong upon him and he would not be comforted.

"No," he said brokenly, "no, without money nothing can be done. My opera will never be heard, never! and meanwhile, we shall starve. I have eaten nothing to-day, and my wife and the children—they are hungry. And I can do nothing! I can't make money—I can only make music!"

"Give it up and turn your hand to something else," I suggested. He turned upon me fiercely.

"Give up music? throw away my God-given genius? What do you think of me? I cannot! I tell you I cannot! I only live for music; I belong to her. The world seems only half real to me, but music is real and strong; she draws me on—and when she calls I must follow."

He resumed his seat at the piano.

"Listen, this is Kosciusko's song to his loved one."

It was a beautiful and passionate love-song, and Koffsky sang it as though inspired.

By the time he had finished it, he had evidently forgotten my presence, and went playing and singing dreamily on, for more than an hour. When at last he rose, his despondent mood had vanished.

"Ah, it is a glorious opera!" he cried. "It will take the world by storm! Some day you will hear of it, Mr. Blencowe, and then you will be proud of your poor friend, Beethoven Koffsky."

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A few days after my last interview with Koffsky, I was fortunate enough to obtain a six months' engagement as bear leader. The Honorable Herbert Algernon Cecil FitzTaltork was only eighteen, but he possessed an obstinacy beyond his years, and an immovable ignorance that no cramming could shake. I led my growling and refractory charge through Italy and Switzerland, failing systematically to implant the faintest knowledge of anything in the singularly unproductive soil he called his brain; and I was heartily thankful when we went our separate ways, the honorable Bertie bound for his parents' "mansion" in Berkshire, I for my diggings in the Temple.

I had not forgotten poor Koffsky all this time, and I had not been back many days, before I paid him a visit. The same thumb-sucking, dirty-aproned urchin opened the door for me, but I noticed that his frock was black, and unusually respectable. There was a singular absence of noise in the house; there were no children sliding down the banisters, no baby crawling on the stairs, no article of childish apparel airing on the landing. What had happened? Mrs. Koffsky put down her sewing and rose as I entered. The poor little woman's life had never been a

very happy one, but she had always managed to keep bright and cheerful: now, as she stood looking at me, paler and thinner for her black dress, I thought I had never seen so sad a face. Her pretty blue eyes looked sunken and faded, her fair hair had taken a tinge of gray.

"Mrs. Koffsky," I cried, concerned, "what is it? Is Koffsky—?"

"No," she said in a quiet, dull voice.

"Koffsky is not dead—yet, but I think he is dying. I am in mourning for my children," she added, glancing down at her dress. "You remember poor little Stanislas and my pretty Mary? they died three months ago. Ah, Mr. Blencowe," she cried, clasping her hands together, "if you had been at home I should not be a broken-hearted woman now! You have always been a good friend to poor Beethoven, and you would have helped us, I am sure."

"I would indeed," I said, "but how—?"

"Sit down," answered Mrs. Koffsky, "and I will tell you; it will do me good to speak—I have so few friends."

She shaded her eyes with her hand, and went on rapidly:

"We have always been very poor, you know, Mr. Blencowe; well, just when you left England we were poorer than ever. Beethoven had been entirely wrapped up in his opera, and had done nothing to make money—I could only earn a few shillings by needlework—we were nearly starving, and from cold and want of food the children fell sick. My husband was in despair; he went everywhere with his poor opera—but no one would have anything to say to it. We got poorer and poorer, and the doctor said that only proper nursing and nourishment could save our children. I went to your rooms, but you were away and had left no address—we had no other friends to go to. Oh, Mr. Blencowe, it was terrible to see our children dying for want of a little money! And then, just as we were in despair, and there seemed no help anywhere, a gentleman came to see us—a composer whom Koffsky had met once or twice, and—and he looked at the score of the opera, and made Beethoven play and sing it to him—and then—then he offered to buy it."

"To buy it!" I cried; "Koffsky's opera?"

She smiled drearily.

"Yes, he offered to buy the opera, but only on condition that Beethoven should allow him to bring it out, with some alterations, as his own. He offered eighty pounds, and—and Koffsky took the money. He parted with the opera which was to bring him fame and fortune. He signed a paper, I don't know what it said, and—and the beautiful opera is gone. What else could we do, Mr. Blencowe? We got food and wine for the children—but it was too late. Stanislas and Mary are dead—and Beethoven will never be famous now."

"Poor Koffsky!" I murmured.

"He did it to save us," said Mrs. Koffsky softly: "he gave us more than his life. That opera was his very soul, and Beethoven has never been the same since he lost it. He is dying."

"What is the name of the man who bought the opera?"

"He calls himself Edgardo Campanile," said Mrs. Koffsky, with a faint smile: "my husband says his real name is Edward Bell."

I started; I had some acquaintance with Campanile, and, though I know pretty well what meannesses most of my friends are capable of, I should never have credited him with quite such baseness.

When we had talked a little further, Mrs. Koffsky took me into her husband's room; the poor fellow had expressed a desire to see me. Koffsky was stretched upon his bed, looking deathlike. His skin, which was of a dreadful yellow pallor, was stretched so tightly over the almost fleshless bones, that his face looked more like that of a skeleton than a human being. His eyes shone with unnatural brilliancy from their hollow sockets, and the intense blackness of his long tangled hair made his pallor still more ghastly.

"My poor Koffsky," I said, "I am sorry to see you like this."

He reached me a feeble claw-like hand, and his dry lips drew themselves into a ghostly smile.

"Has Mary told you?" he gasped, raising himself with difficulty on his elbow.

"About your opera?—yes."

"I sold it!" he cried, his eyes flashing wildly, "I sold it, my music, my heart's blood, my own child—I sold it to a stranger! It is gone. I shall never compose another, and the name of Beet-

hoven Koffsky will remain unknown and unhonored. I did it for their sakes—for Mary and the children—and the children died—and I have sold my music, my fame—my life!"

His voice died away in a moan. Presently he plucked my sleeve and drew me nearer to him.

"It is to be performed next week," he whispered, "at Drury Lane. Oh yes, fine singers will sing in my opera, fine people will hear it—but I—I shall not hear it. Campanile would not tell me about it, but I have looked and asked, and found out everything for myself. He has changed the name and found a new libretto—he has altered some of my music"—here a spasm of anguish passed over the musician's face—"he has mutilated my *chef-d'œuvre*—but it is still Koffsky's music. Next week the world will ring with the fame of the great composer—but my name will remain unknown."

"It is shameful!" I cried hotly.

"Yes, it is shameful—but what could I do? It has killed me. The doctor thinks I can't last beyond this week, but I shall live till my opera is performed."

"And yet is it not something that your music should be heard?" I asked after a long pause.

He smiled.

"Yes you are right—it is something. My child is not born in vain; my child will live and conquer the world; what does it matter if the father is unknown? But it is hard on the father, is it not? and when he loses his child what has he to live for?"

He gazed dreamily before him, and began murmuring to himself the song he had sung to me six months ago: *Kosciusko's love-song*. I saw he had become oblivious of my presence, and left the room softly.

I found by looking at the *Standard* that poor Koffsky's opera, *Kosciusko*, was to be produced the following Thursday, under the title of *Arnold von Winkelried*.

"Great interest is felt throughout musical circles," said the *Standard*, "in the approaching production of a new opera by the well-known composer, Edgardo Campanile. *Arnold von Winkelried* is founded on a supposed love episode in the life of the celebrated Swiss patriot, and deals with the ultimate death of the hero. We hear that the opera will be

quite a new departure from the composer's usual light and somewhat trifling style, and in place of his light sparkling music we are to expect weird harmonies and wailing chords. The voice of rumor whispers that *Arnold von Winkelried* is the outcome of a bet, Mr. Cyrus P. Tewanger, the renowned American musical dilettante, having laid a wager to the effect that Signor Campanile is incapable of writing anything in the serious style of opera that will prove a success and add to his reputation. If *Arnold von Winkelried* finds favor with a London audience, Signor Campanile will be the richer by one thousand pounds."

I went at once to Drury Lane and took a stall for Thursday night, determined to hear my poor friend's opera. Thursday came, and found me punctually in my place. It was a full house; pretty women, diamonds and fine dresses were as plentiful as they always are in an English opera-house. I saw the faces of many well-known musical critics in the stalls around me, and wondered if that rogue, Campanile, would win his bet. I almost found it in my heart to wish that Koffsky's opera might prove a failure. I will not describe the music; all I can say is that it pleased me from the first note to the last, that it was full of melody without being commonplace, and in parts rose to a height of passion and pathos that roused the audience to frequent bursts of enthusiasm.

"Good, very good," I heard G—the critic, who sat beside me, whisper to his companion, "but quite unlike Campanile's usual style and incomparably superior. Wonder how he came to write such an opera."

The curtain went down on the last act, the music dying away in a faint tremulous repetition of the motif of the hero's love song in the second act. There was a roar of applause from the whole house; the opera's success was complete. I looked at my watch; it was three minutes to eleven, and I hurriedly dived for my hat and coat. I had just got them on, when a shout for the composer was raised from the gallery and taken up by the entire audience. Curious to see whether Campanile would have the audacity to respond to this call, I waited. There was a momentary pause, during which the shout of "Composer! composer!" became louder

than ever, and then the heavy curtain was rolled back, and a figure came slowly forward. Good heavens! it was Koffsky! Koffsky whom I had left last week more dead than alive. What pluck the man must possess to have dragged himself here! As Koffsky advanced slowly across the stage a sudden and intense silence fell upon the house. A door must suddenly have been opened near me, for I felt a cold wind sweep across my face and a curious chilly sensation creep through the roots of my hair.

"Who the deuce is that fellow?" murmured the critic beside me, and it seemed to me that he was very pale. At the same moment I became aware that I felt extremely ill-at-ease, not to say frightened, but why and wherefore I could not imagine.

Koffsky paused in the centre of the stage and bowed solemnly. I shall never forget his face. He was very pale, paler and more deathly than ever, and his thin face wore an expression of intense and triumphant joy such as I have never seen in any human countenance. He walked slowly across the stage and disappeared behind the wings. I drew a deep breath; the curious chilly feeling that oppressed me, vanished, and I felt the blood returning to my cheeks. At the same moment the applause broke out again, mingled with hisses from Campanile's friends, who naturally resented this mis-appropriation of the honors of the evening. While Koffsky stood before the curtain I had felt rooted to the spot, but now an intense curiosity seized me as to how the man had got there, and what had happened to him at the hands of the presumably furious Campanile. But how was it that Campanile had allowed him to appear at all? Absorbed in these queries I hurried to the green-room. I found Campanile surrounded by friends and musicians, all plying him with eager questions which he appeared incapable of answering. He was huddled in a chair; he looked panic-stricken, and was mopping his forehead with a large pink handkerchief. When he saw me he started up and caught hold of my arm with a visibly trembling hand.

"Blencowe," he said, "they tell me you know that scoundrelly Pole—what was he doing here? Why the devil did the fellow behave like that? Does he drink? Is he mad?"

"Why did you let him go on?" I asked.

"I tell you I couldn't help it!" stammered Campanile; "I—I was just going on myself, of course, when—when suddenly there was Koffsky, standing right in front of me. I swear he wasn't there before—I swear I never saw him pass, but there he was. Of course I tried to stop the fellow, but—but I couldn't move! I felt as cold as ice—I feel so still. I'll tell you what, there's something wrong somewhere—there's something devilish curious!" He shivered as he spoke, whether from conscience or a chill I cannot undertake to say. But certainly the scoundrel had all the appearance of a man who has had a severe shock.

"Where is Koffsky now?" I asked.

"I don't know," shuddered Campanile, collapsing into his chair again in a heap. "I haven't seen him since—since *then*; I hope to God I shall never see him again!" he added under his breath. Just then a servant came up with some bottles and glasses, and I saw him swallow down half a tumbler of brandy as though it had been water. By this time I was beginning to feel scared myself. An undefined, curious feeling of terror weighed upon me, and without losing any more time I left the green-room and hurried out into the street. Koffsky must have gone straight home, so I took a hansom and drove off to his lodgings. To my surprise the door was ajar; I pushed it open and went in. The house was very silent, there was no light on the stairs. Had they all gone to bed? But I was determined to solve the mystery of Koffsky's appearance at the opera, and striking a match I stumbled upstairs and entered the little sitting-room. It was empty, save for the two children. I paused a moment, uncertain what to do, then, seeing a light under Koffsky's door, I knocked gently.

"Hush!" said Mrs. Koffsky's low voice from within: "hush! I will come out to you."

I waited for nearly half an hour, and then the door opened softly and she came out, a lighted candle in her hand. The flickering light showed me a terribly white, tear-stained face.

"Forgive me for disturbing you at such an hour," I began, "but I am anxious about your husband. Has he come home yet?"

"He has *gone* home," she answered, with a curious emphasis on the word.

"Gone home—where? to Poland? that can't be! I saw him less than an hour ago."

"That is impossible," she said, quietly; "my husband is dead."

"Dead!" I gasped; "but, Mrs. Koffsky, I saw him!"

For all answer she led me into her room. The sheet was drawn up over the bed, but under it I could see the outline of a still figure. She drew down the sheet. Yes, there was Koffsky's dead white face, fixed in that same look of triumphant joy it had worn on the boards of Drury Lane. "He is happy now," said his wife softly.

I felt cold with horror. I realized now what was the meaning of the chill intangible terror that had haunted me.

"At what hour did he die?" I asked in a voice that sounded quite unlike my own.

"At eleven," she answered. I felt myself turning paler; it was at eleven that Koffsky had appeared before the curtain at Drury Lane.

"Good God!" I cried, "I have seen your husband's spirit!"

She took me into the sitting-room and I told her what I had seen, in a whisper, to avoid rousing the children. There is something ghastly in a whisper, and when I had ended my story I felt more terrified than ever. Mrs. Koffsky looked at me with an awestruck face.

"It is marvellous," she murmured, "but you don't know yet how marvellous. Beethoven knew that his opera was to be given to-night, and all day he has seemed waiting—waiting. He has been terribly ill; a dozen times I thought he was dying—dead—but he rallied; it seemed as though he *would* not die. Suddenly, this evening, as the clock struck half-past eight he started, moved, and half raised himself in his bed.

"Hark!" he cried, 'hark! don't you hear? it has begun! my music! I hear it!'

"He fell back on his pillows, but I could see that he was listening, and sometimes he smiled and beat time feebly with his hand and hummed a few bars of a song. An hour or two went on like this; I thought it must be time to give him his medicine, and looked at the clock. It

wanted three minutes to eleven. At that moment Beethoven started upright in bed; his eyes were widely opened and fixed as though they saw, oh, so far away!

"Listen!" he cried, "don't you hear? Oh you *must* hear! applause! shouts! they are calling me! Mary, they are calling me!" He remained for a moment, gazing eagerly before him with a strange look of joy upon his face, then fell back. He was quite dead, and as I raised his

head upon my arm the clock struck the first stroke of eleven."

Mrs. Koffsky was silent. I drew a deep breath and a little chilly wind stirred my hair.

Poor Koffsky! His dying ears had heard the distant echoes of his beloved music; the applause he had so longed for in life had had power to draw his spirit to the spot. Beethoven Koffsky had been happier in his death than in his life.—*Temple Bar.*

MANNERS AND MORALS.

THERE are few things repeated more often than the assertion that the manners of modern society are deteriorating, and that the bad manners are only the outward and visible sign of bad morals. To each of us has been said the well known words, "In my young days such things were not heard of, and were not done," and each of us, as we have asked for grace to bear meekly the sickening platitudes which adorn the saying, have registered a mental vow that we would not, when our time came, subject the rising generation to such a discipline of idle and sour words.

To make the present young generation thoroughly thankful for its mercies, it is well to remember the manners and customs of good society in the latter half of the last and early quarter of this century. To call upon a friend, even a few doors off, necessitated the attendance of a footman walking behind, armed with a gold-headed cane. To be seen in any form of "hackney" carriage was not within the range of possibilities, and as to riding in any conveyance partaking of the nature of a modern omnibus, the properly-brought-up damsel would as soon have imagined herself at the cart's tail *en route* for Bride-well. In society she was not, according to modern views, in a much happier plight. Round dances had not long been introduced, and were only practised by the few, the courageous, and those who knew they could dance; "and a very good time we had," was said to us on this subject by one of these early performers. Certainly there was more dancing in those days for the girls. They probably knew almost every one in the room, and the men who went to balls then were not, as

in these days, only the overgrown school-boys whose one idea is to eat and lounge. However, with dancing, as we think now, ended this superiority. When supper or tea time arrived, the lynx-eyed guardian always accompanied her charge downstairs, and "sitting out" was not "born or thought of." When the time of betrothal arrived, to be seen walking or riding alone with the husband of the future was never considered possible or desirable, and lovers were not treated with that lenient, if somewhat contemptuous, consideration which is accorded to them in these days. "And yet," said that same authority we have quoted above, "it did not prevent one having a great many admirers." And in this lies the whole truth. No manners and customs prevent the young enjoying themselves in the way which is natural to their youth, and we need not in our enlightened times spend too much pity on our grandmothers, who, in our estimation, must have been a long-suffering generation.

We think we may justly argue that the greater freedom accorded to the actions of the young woman in these days implies a more civilized state of society. The social condition of the streets no longer necessitates the footman, who was himself only a survival of the "retainers," and his "care," a peaceful substitute for their "staves." Any one who elected now to be followed by such a guardian would indeed be earning the censure of "boldness" which the grandmotherly generation freely bestowed on their juniors when they first emancipated themselves from such surveillance, and discovered that to every sensible and well-conducted young

woman the streets of our great towns contained no more serious perils than a crowded crossing.

In all this we believe we are right in recognizing the change in manners to be a change for the better, because it implies that both sexes are more to be trusted, and that it is not necessary to exercise so strict a protection. No one will assert that the protection we have described effectually prevented all scandalous events, and that society in those days was safer than it is at present. Wherever men and women are congregated together, there will be found in their ranks those to whom nothing is a safeguard, and who are destitute of honor and refinement; but we believe that this lower stratum in every society is to be guarded against, not by surrounding the sexes with crippling and irritating regulations, but by teaching the one the true value and nobility of her womanhood, and the other the laws of self-respecting chivalry. The one state of society implied that people could not be trusted; the other, if it errs on the side of trustfulness, at least errs on the side of strength. During that portion of the century of which we have been writing, good society meant a circle which it is hardly fair to call exclusive, for no one not belonging to it dreamed of trying to get itself included. No one was ashamed of being of good birth and standing, and "loving your neighbor" did not imply dining with him if he had sufficient money to give you a very good dinner; and his display of himself and his surroundings as "gilded images" did not hide out of sight his inherent vulgarity of manner. In these matters we have changed, and we must regretfully admit with the grandmothers that the change is not all to the good. But it is as vain now to complain of it as it is to complain of the Reform Bill of 1832, and we would rather turn our attention to certain good points in this invasion of all sorts and conditions of men. No doubt what good there is in every one having a fair chance is counterbalanced by the fact that on the surface a great deal is tolerated which is neither witty nor brilliant, but which is simply vulgar display, and it is among these people we hear the greatest complaints of the bad manners of the age. This class to whom we refer have money, and have nothing else, and with their money they buy what they

think is a position in society. They take a house and have it decorated, and then send for the evening papers to interview and describe it. They then get an introduction to some foolish member of good society, and she gives them the loan of her name and her visiting list, and they issue invitations for a ball to some hundreds of people they have never seen, and with whom they can never have anything in common. They spend unlimited sums on all the arrangements, and the supper would do credit to the *Arabian Nights*; they provide gorgeous presents, "all with the Hall mark," and they send the bills to the said evening papers. The guests arrive, and then we hear complaints that the young men go straight in to supper, and neither speak to their hostess nor dance with the girls. We are not concerned here with the conduct of the guests. "Beasts after their kind" the entertainers have succeeded in getting undoubtedly, but we are surprised at the complaint. The givers of the entertainment have succeeded in getting what they bid for, the attendance of these guests. They have bought "a pig in a poke," and need not be surprised that the only thing they have to give has been fully appreciated.

No nation understands all this better than the Americans, and they are the first to exclaim at the extraordinary people we admit with an easy tolerance into society. The truth is, we let them think themselves admitted because it would be offensive and troublesome to oppose them; but we also know they trouble us no further than just as far as money will purchase, and their standing is only in those circles where money is everything. The Americans understand how to protect themselves, and do so much more effectually. The laws which govern their society are most entertaining to study, and the social gradations are worthy of the most feudal system. We are always grateful to the *Mayflower* as enabling us to fully believe in the capacity and adaptability of the Ark, when we learn how many "good families" came out of that gallant little vessel.

We hear in these days a good deal about the "sets" and "cliques" of society, and those who are outside them dub these with names, and invent strange tales as to their internal economy, and those in-

side them write their supposed history in anonymous verse and prose. Such gatherings together of friends do exist, and will continue to exist in all large masses of society. Friends, that is, who have proved each other in times of trouble and anxiety, as well as in the successes and triumphs of public life; little commonwealths of social relaxation where all are at their ease because all are friends, where the underbred and the stupid are not admitted because they are not amusing, and the conversation is of the best because it is spontaneous. Outside these circles the merely fast and fashionable, the illiterate and the merely moneyed, will continue to remain, and the spiritual nicknames with

which they bombard the walls of these little fortresses will not ever effect an entrance for their gross forms and minds. We have had the advantage in this century of having among us the sweetest Singer of all that belongs to the courtesies of life. And most of us have learned from the nursery "that manners are not idle." And we believe that while we still cherish "noble minds" as the ideal possession, we need not fear the decay of the "fruit" of good manners. Without them nothing is agreeable, and as good breeding is a gift not to be acquired, we believe in a society where so much can be bought, the unpurchasable will always retain its true value.—*Saturday Review*.

MAID APRIL.

BY JOHN WALKER.

(AFTER a term of gloriously fine clear weather, Good Friday dawned in a lovely robe of haze, which hung over Derwentwater and the surrounding hills throughout the whole day, lending illusory magic of the most perfect kind to the magnificent scenery.)

WHERE is she whom we fain would praise
Through moonlit eves in woodland ways,
Through lyric morns on rimy hills,
Through noons among the daffodils?

You see, enwoven of the dew,
A gauzy curtain, dimly blue,
Hung round and round the sleepy vales.
Well, if you could that curtain raise,
You might have sight of her these days,
When glad auroral sunshine pales
The western hills, and thrushes sing
The ever welcome psalm of spring,
(Which mortals cannot, dare not speak)
And echoes answer from each peak.

Ah, yes! shy April, she is there,
Of all the blossom months most fair;
And she is busy with the bud
And curling frond; and, if she would
Draw back the tender veil of haze,
We might upon her magic gaze.

But, no! she works unseen, alone;
She writes God's lessons on a stone,
And teaches all the waking trees
To murmur of His mysteries:
Thus silently, behind the mist,
She kisses those she always kissed.

— *Academy*.

IRELAND ONE HUNDRED YEARS AGO.

THE great curse of Ireland was the improvidence which took no thought for the morrow, and the largest of the landlords set the worst example. Sir Jonah Barrington divides them into three classes—the two highest of which respectively were “gentlemen every inch,” and “gentlemen to the backbone.” Both were of the old, ancient race; they seem to have graduated according to the extent of their acres or the sum total of their rent-rolls, but both were equally embarrassed. In fact, Irishmen in high place were in the paradoxical position of being unable to exercise any influence for good unless they participated in the prevailing national vice. To be popular a man must be recklessly free-hearted and spend far more than he had. The imputation of parsimony or even of prudence was fatal. Lever, in his *Knight of Gwynne*, draws an Irish landlord of the best and most refined class. The Knight ruled his vast estates, through a Dublin viceroy, with lenient sway, and probably the tenants who were the nearest to him were the most pauperized, for they shared in “the lashin’s and lavings” from the Abbey. He had any number of servants; his stables were filled with horses eating their heads off; and yet they were not altogether useless, for at any time the vast house might be crowded to the roof-tree with a sudden descent of visitors. The old butler gives a faint notion of the cost at which the kitchen was kept going when he tells how even on ordinary days a dozen or so of hungry guests might drop in at the last moment. As one of the characters in *The Knight* observes, there is a deal of eating and drinking in £10,000 a year, and the Knight was supposed to have twice as much. But, though a model of frugality and forethought, compared to his friend Bagenal Daly, he signs deeds without glancing at their purport while sitting in the saddle; posts up special to Daly’s to lose a match at piquet to Lord Drogheda for £60,000 odd, and a day or two later expresses surprise to his agent that he should have done his ample income any serious injury. Had it not been for his being suspected of selling his county to Castlereagh, nothing could have gone further to increase his unbounded

popularity with his countrymen than that hare-brained game at cards. He might have raised the wild West from the cliffs of Moheir to Cape Clear, and held the Abbey against old Hickman and the whole host of the creditors, as Bagenal Daly proposed. Such were the men who, representing the national temperament, gave the tone to the national life, and perpetuated national ignorance and squalor. As Lever says of Martin of Cro’ Martin—whose sharp agent was a local man—his greatest excuse through life was that he was forever “unprepared.” “With large resources, he was never prepared for any sudden demand for money.” When called upon for an effort, either with his sympathies or his purse, he was always unready to comply; and he had brought himself to believe that an expression of regret fully absolved him from all responsibilities. Those were the landlords who were absolutely paralyzed when the potato disease suspended the payment of rents, or even in times of less exceptional distress. If they could find the wings to fly withal they fled the country, and left their agents to try to squeeze blood from the stones, in place of acting as almoners, comforters, and advisers.

Men who had no pretensions to maintain the lavish state of a Cro’ Martin or a Gwynne Abbey did their best to devour overburdened properties. They made it their pride to keep open house, with that promiscuous and rough-and-ready hospitality which degenerated into the coarsest debauchery. Lever paints a pretty picture in the manner of Rubens, or rather of Jordaens, of the mixed drinking party seated in the great hall at Gwynne under the congenial presidency of Daly. And Sir Jonah Barrington gives a yet more suggestive sketch, which, as we may take for granted, was strictly veracious. His brother, who was a man of family, living in the best society, was frozen out from his favorite field sports in the winter of 1778. He retired to a shooting-lodge, drew down the blinds, lighted the candles, and kindled great fires in the parlor and kitchen. He invited a few hard-headed boon companions; nor was he over-fastidious in the selection. He had a cow slaughtered and hung up by the

heels ; he passed a general sentence on the fowls in the poultry yard ; he laid in a hogshhead of "superior" claret—we should be inclined to question the delicacy of its bouquet ; and, indeed, even a tolerable second growth of the Gironde would have been as pearls cast before swine. For the party proceeded to guzzle and to gorge through several days, merely interrupting the carouse for a sanguinary cock-fight, till the cow had been finished and the hogshhead drained dry.

Conviviality meant serious drinking, and hard drinking was necessarily prolific of duels. They were effective and characteristic features of Irish life for Lever to throw into his novels ; nor does he by any means exaggerate, though some of the incidents seem extravagantly grotesque. The English regiments quartered in the South and West found the monotony of these piping times of peace somewhat disagreeably interrupted. A man who had carried the colors at Talavera or led a forlorn hope up the breach at Badajoz might have pluck enough. But it was one thing to fall before your comrades covered with glory, to be subsequently embalmed in the Duke's despatches, and quite another to turn out in a misty morning, to be shot at like a snipe on the shores of the Shannon, by a gentleman who was a past-master in pistol practice, and with whom the Saxon had really no cause of quarrel. As for the native-born Irishmen, they took as naturally to the pistol as a game-cock to the spurs ; they had their peculiar ideas of private glory, and had to vindicate a local reputation for courage. To be ready to "blaze" and to shoot straight might challenge provocations, but, on the other hand, it went far to ensure immunity from insult. At every social gathering of country neighbors, there were smouldering enmities ready to blaze up. There were feudal animosities always rankling. Among the guests there were sure to be licensed jesters, free enough with their jests and personalities ; nor were they likely to pick and choose the words, or spoil a laugh for the fear of consequences. Those who might have showed the white feather in cold blood next morning, ruffled up when well warmed by claret and "the groceries." And their seconds were too careful of their honor to let the affair be settled anywhere short of the ground. We said that Lever does not exaggerate.

When Earl Clare, the Lord Chancellor, fought Curran, the Master of the Rolls, and the Chief Justice, Lord Clonmel, fought no fewer than four duels, and one of them with a Privy Councillor, no man not in holy orders could dare to take his stand behind law, religion, or morality. Barrington mentions that many of the fighting Western families had far-renowned pistols, mounted in brass or silver, handed down as heirlooms, and lovingly used. Possibly that fact, with the tremor of the hand after a long night of deep drinking, may explain why the deadliest of shots did not always cut out work for the sexton. But there were notorious duellists, who, like the "gamesters" of Western America, generally kept themselves more or less in condition, and being seldom or never taken unawares, almost always killed or winged their man. Those heroes who were admired, if not beloved, in social circles, were usually known by affectionate abbreviations of their Christian names, such as Jemmy Keogh, or Amby Fitzgerald. They were the unofficial umpires in a Supreme Court of Honor, from whose decisions there was no appeal. Every one has heard of Fighting Fitzgerald, whose successes have been said to be due to foul practices, who, transferring his talent to English soil, terrorized "Brooks" into a revision of his blackballing. One of the most diabolical and dramatic incidents in his career, and we believe it to be strictly founded upon fact, has been made the subject of one of Sheridan Le Fanu's best stories. No doubt there was a law in Ireland as well as in England, and a machinery supposed to be prompt to put it in force. But in England, when two gentlemen settled their differences with the pistol, they were bound to take precautions against interruption, and a fatal result involved awkward consequences. In West Ireland the news of an impending encounter sped swiftly far and near by word of mouth ; no sort of secrecy was observed as to the place of the meeting, and a delighted crowd would gather round the ring. Barrington gives various historical reminiscences ; Lover, in his *Handy Andy*, gives a description of the public ordeal by battle between Ned O'Connor and the truculent O'Grady ; William Carleton, in his very realistic story of *Castle Squander*, makes the Squire's two sons challenge the sheriff of the county

and his brother on a public race-course, and the notorious duel is brought off the next morning, although the sheriff had solemnly sworn to see to the preservation of the peace. Lever, of course, in his rollicking manner, makes the duelling mania the theme of continual laughter, and when his heroes are shot down and sent to bed he sets them grinning over the fun as if they liked it. But in his more serious moods he repeatedly argues that the disregard for human life in high places was one of the worst calamities of the unfortunate country. How, indeed, could it be otherwise? The gentlemen set the fashion to the farmers and squireen, and all did their best by bad example to demoralize the peasantry. If the landlord was always ready and willing to shoot a friend, sure there could be no sort of harm in a faction fight with neighbors. Actually, for many years, there was general recognition of a duelling code, drawn up by representatives duly commissioned, from Tipperary and Mayo, Kerry and Cork. The rough bog-trotters from outlying baronies did not stand upon nice delicacies like that. When the potheen

had got the uppermost, and the blackthorns were being flourished to the ear-piercing yells of the rival war-cries, they laid about them with ruthless indiscrimination, took every advantage in point of odds, and vented their brutality on the crippled and the fallen. These cruel and cowardly customs had become hereditary through untold generations, and the gentry had neither the inclination nor the moral influence to do anything to change or soften them. The Celtic savage became a gallant soldier when recruited and disciplined in the barrack yard and sent to Spain or the Low Countries; but at home he was a sneaking savage all the same. So from the open faction fights it was always a short step to taking the atrocious oaths of the secret societies, to gathering into night gangs of masked terrorizers, or to shooting the landlord or the agent from an ambush. If agrarian crime has always been so rife in Ireland, if it has been never stamped out, though sometimes temporarily suppressed, the old race of fire-eating landlords must be held largely responsible.—*Saturday Review*.

THE LIMITS OF FREE-WILL.*

THE case of the "Conscious Automaton," if he can be said to have a case, does not certainly consist in the conspicuously false analysis which he makes of the phenomena of volition, but in the tendency of the free-willist to exaggerate greatly the sphere within which there can be said to be moral freedom. It is perfectly true that nothing can be conceived that is more important and more significant than the part which free volition plays in the drama of human life. It represents the woof where the constituents of our life over which we have no control represent the warp. It impresses more or less of deliberate purpose on the whole wealth of human faculty, and stamps with its seal even the passive sufferings of which our existence is partly made up. The voluntary efforts by which we mould what would otherwise be the drift of our characters, whether in doing or in enduring, to

our higher purposes, are all unintelligible without free-will. And yet it is true that probably of all the minutes of an average life, barely one in a day dates a fresh volition, though, of course, very many date the direct consequences of former volitions which have long been incorporated in our habits and assimilated into the very tissue of our active or passive moods. It is effort, and effort only, which betrays free-will. A mind that is the sport of its various desires, and that yields itself without a struggle to the resultant of its contending desires, is no more conscious of effort than a straw which dances on the eddies of a whirlpool, and is borne hither and thither as those eddies may determine, is conscious of effort. We may all of us satisfy ourselves of this by carefully watching ourselves during the conflict of various desires and emotions, when we deliberately give ourselves up to the spontaneous operation of those complex feelings. We are conscious of the vehemence of some, of the steady persistence of others, of the

* See article entitled "Thoughts of a Human Automaton."

submergence and disappointment of those which are overwhelmed, of the victory and gratification of those which carry the day. But we are not conscious of *effort*, unless we ourselves bring out of our own will and purpose some new force which allies itself with one or more of our desires, and which forcibly suppresses, or at least subdues and mortifies, those which rage against our deliberate purpose. Effort is self-created force from within,—from within the very innermost source of personality. It often gives the victory to the desire which is intrinsically the weakest, and defeats the passion which is intrinsically the richest in spontaneous vigor. But efforts of this heroic kind are rarely, perhaps, as numerous as the years of a human life; and even genuine but much less costly efforts are numbered rather by days than hours or minutes. Of those vital conditions over which we neither have, nor even so much as imagine that we have, any control, we can enumerate a host without even a moment's hesitation. No man supposes that he is responsible for his own physical constitution, for his own keenness or defectiveness of sight or hearing, for his height or his descent, or for his hereditary tastes and prepossessions. Nobody supposes that he can be independent of the climatic influences in which he was born, or the scenery and human associations which have moulded his habits and expectations. No man supposes that by the exercise of his own free-will he could have supplied all the defects of a bad education, and cancelled all the evil influences of vicious companionship. No man supposes that he could have made his original faculties and instincts different from what they were, or that he could have warded off all the attacks of disease, or materially altered the character of his earliest affections. All these influences are of the very warp of our nature, and are conditions as determinate as the solar light and heat and the atmospheric and magnetic currents by which our bodies are affected, and our perceptions and sensations developed. Free volition starts and sustains many a new exercise of energy, alters essentially many a habit of thought, and many a sphere of practical activity; but it can only work on a mighty web of determinate conditions so numerous and so complex, that it is safe to attribute the actual complexion of any man's mind and character

to a thousand potent influences over which he has no control, for every one which he either has actually moulded or might have moulded by his own free-will.

And we may note especially that the most conspicuous parts of character, those on which the charm or repulsiveness of character depends, are very seldom completely, or even in any large degree, under the control of the will. The sweetest and most affectionate persons are usually sweet and affectionate by nature rather than by virtue of any self-education or self-control. No man who was naturally secretive and self-occupied ever became characteristically frank and ingenuous by any amount of effort that he could apply in the period of this brief existence, though, of course, many a one of this type has become far less secretive and self-occupied, far more nearly of the type at which he aims, than he was in his childhood and youth. No man who was by nature timid, and even cowardly, ever succeeded in making himself distinctly bold and remarkable for courage within the period of this life, though such a one may and often does succeed in stifling his timidities, and forcing his naturally cowardly impulses into the background,—into the suppressed and conquered region of his life. Still, it remains true that most of those who particularly attract and fascinate their fellow-men, attract and fascinate them not by any qualities which the exercise of free-will has given them, but by the beauty of inborn and inherited dispositions, and that most of those who repel us by their hardness and dryness and self-consciousness and vanity and pride, repel us by virtue of dispositions which they could no more extirpate than they could extirpate the faults of their physical constitution or raise the temperature of their blood.

How, then, it may be asked, is the part which free-will plays in the life of man so all-important, if it can only modify, and that not always with very much visible effect, the original constitution which nature and circumstance and inheritance combined to confer? It is all-important, because it is the one helm by which we guide our course, by which we impose the *tendencies* which change our characters for the better or the worse, by which we arrest degeneration and stimulate aspiration, by which we determine whether the higher

or lower impulses of our nature shall have their way, whether we shall serve the desires and aims which most exalt us, or the desires and aims which most debase us,—in a single word, by which we become responsible beings. It is quite true that in the case of so short a life as that which men pass on earth, they cannot revolutionize entirely the very grain of their character. If that grain is coarse, they may render it somewhat finer; if it is fine, they may make it finer still; but they can only work on the conditions into which they are born, and can neither eradicate all that they find faulty, nor, as a rule, even transfigure the surrounding influences and circumstances which tend to aggravate those faults. Still, everything is saved if responsibility for the limited changes of which life admits is saved, and that is precisely what the gift of free-will really saves. We are not responsible for the conditions, favorable or unfavorable, with which we start in life; but we are responsible for the full use and development of the favorable conditions, and the attenuation and repression of the unfavorable. The petty mind cannot suddenly spring into grandeur and magnanim-

ity; but the petty mind may become fair and open to the knowledge of its own stiffness and limitations. The ambitious mind cannot suddenly abolish the temptations which spring from its own restlessness and audacity, but it may force itself to see the manifold snares and sins to which these audacities lead, and so bank-up its eagerness and its insatiable cravings, as to control and turn to a nobler use the imprisoned force of which it can dispose. The strict limitations of free-will are visible on every side. Free-will is no magician to transform by a wave of the wand sullen passions into exalted affections, or plodding industry into flashing genius,—a hut into a palace, or a rusty knife into a Damascus scimitar. But it is free-will, and free-will alone, that can transmute mere graceful dispositions into high and steadfast character; that can imbue the finer feelings with the depth and constancy of deliberate purpose; that, in short, can saturate the automatic spiritual vitality of childhood and youth with the full personality of those fixed intentions and motives which lift instinct and impulse into the loftier region of divine life. —*Spectator*.

A SAUL AND DAVID OF THE STEPPE.

BY MICHAEL A. MORRISON.

ON the right bank of the mighty Volga, about midway between the towns of Samara and Saratoff, a road leads away across the level and illimitable steppe to the lonely village of Sergéyevka. In dull November weather a traveller visiting this region, and looking only for the superficially picturesque, would be, perhaps, depressed by the dreary monotony of the landscape—interminable plains of brown grass, yellow stubble, and waste land, without a house or tree, without even a telegraph post to break the dead uniformity of nature; but if he were of a receptive humor, he might be impressed and interested by many a curious glimpse of life. He would pass an occasional Kalmyk shepherd—queer, slant-eyed, yellow-skinned heathens trudging along the road in their greasy sheepskins—perhaps dragging a camel after them; he would see browsing on the stubble flocks of goats—

haggard, weather-stained, and venerable beasts—the very goats for the foreground of some brown etching, dark with the passage of storm; and as he approached Sergéyevka he would notice the flaxen-haired Russian children tending the cattle; the leafless, silver-stemmed birches round the little paddocks; the young poplars and the willows beside the stream, and by the squat houses of the peasants; the white-washed church with its sky-blue cupola adorned with gilded stars; the bright head-dresses of the women and girls, over their sunburned faces; and the old men and *babui* sitting at the doors of their cottages, talking the everlasting small-talk of the village. Interesting enough scenes these for him who delights in the contrast of juxtaposition between what is familiar and what is remote and strange.

Count Pavl Kirilitch Levashoff was the owner of the village of Sergéyevka, the

great man of the district. If the villagers were asked what they thought about Pavl Kirilitch they would answer by saying that he was a *ichudak*, a queer fellow, and would shrug their shoulders; but when pressed for fuller information they would admit that they knew little or nothing about him; that he kept himself remote from them in his big lonely house across the stream; that they seldom saw him; and that they were all afraid of the sombre, silent man whom they called their *Barin*. They had no love for him. He took his dues, and evinced no interest in their concerns. The priest and the school-master never ventured to approach him when the harvest turned out badly, and they wanted help to ward off hunger from the village. He had come to Sergéyevka to live five years ago, when his father died—the Lord rest his soul—people said from Petersburg. In all that time he had never left the village, and no one of his former friends ever visited him—perhaps he had no friends. An old *baba* kept house for him, and Simyon Andreitch was his house-servant and steward all in one; but never a word would he speak of the *Barin*. This was all the peasants could tell about Pavl Kirilitch.

But there was far more to tell. When Pavl Kirilitch arrived at Sergéyevka he was a man of thirty—a man young in years. But he was broken by dissipation; a ruined, wretched creature, who had wasted all the fortune left him by his mother, and all his father's savings as well. His life in Petersburg had been so strange and disgraceful, that all his relations had quarrelled with him, and all decent people shunned him. Just as he was being driven out of the society of the reprobates he frequented, for a fraud at cards more than usually flagrant, his father died; and disgraced, covered with contumely, branded as a common cheat, ruined in pocket, in mind, and in body, he fled to Sergéyevka, and hid himself in shame—the horror of the memory of his past life eating out his heart, and bringing him to the verge of madness.

Years of unutterable misery were now his portion. The memory of what he had been, the mordant thought of what he might have been, the ghosts of past crimes, the woful career of sin and shame—all this burdened the heart of Pavl Kirilitch with a load of anguish, from which he

vainly sought release. Only one friend remained to him, old Simyon the steward. Every one else fled from the lowering eyes that could only express hate and contempt; from the man whose cynical laugh, cruel speech, and storms of ungovernable fury made him an object of terror. It was this faithful servant who would often steal into the room where the *Barin* was lying, face downward, on his bed, and remove his revolver, or his razor, or his rifle, fearing he would lay violent hands on himself in one of his fits of passion; or would try to still him as he would a child, when he lay moaning all through the night in the agony of his mind. Simyon Andreitch never heeded the hard words and black looks cast at him. He would say to himself: "The *Barin* is in great trouble;" or, "The *Barin* has a heavy cross to carry to day;" or, "The Lord is smiting the *Barin* more than he can bear, but it will all come right—*vsye boodyet khorosho*."

It happened during one of the *Barin's* "bad days" that old Simyon was in the little room that served him as office, a room adjoining his master's. He heard the swift, uneven steps of the conscience-stricken man, as he paced his room like a caged animal, and he wished from the bottom of his heart that he possessed a salve to heal wounds that could cause such unending anguish. But he noticed that Pavl Kirilitch's movements gradually became slower and more regular, until at last he stopped in front of a small cabinet. Simyon Andreitch rose, and through the slightly opened door he saw his master take from one of the drawers of the cabinet an old flute that had lain there unused ever since they came to Sergéyevka, and wet it preparatory to playing. Pavl Kirilitch sat down on his bed and began to play an old Russian melody that all the peasants of the Volga know—that he must have learned when he was a child, long before he went out into the world—a song about the rising sun. And as he played the tears rolled down his haggard cheeks. Starting up suddenly, he broke into peal after peal of horrible laughter, and, dashing the flute into the burning stove, he sank on the floor, sobbing as though his heart would break. The old steward crept into the room, and strove to soothe the stricken man; but for many a day after Pavl Kirilitch was as one dazed, as one from whom all consciousness had fled;

silent, motionless, without either hope or passion of spirit.

Leaving the old *baba* in charge of his sick master, Simyon Andreitch one morning crossed the stream into the village, on some business connected with the estate. He was feeling sore at heart about the *Barin*, revolving many things in his mind, thinking what could be done to alleviate the sufferings of the lonely and heart-broken man. As he drew near to Sergéyevka he noticed one of the village lads, perched on top of a ruined wall, singing, and playing an accompaniment on the roughly made mandolin, so often seen in the hands of the Russian peasantry. Simyon Andreitch could not tell whether it was the melody itself, or the way in which it was sung, that fascinated him. He recognized it as the same simple air that the *Barin* had played on the flute; but it was sung with so sweet a voice, and the coarsely made instrument was touched with so skilful a hand, that the old man stopped in wonder to regard the boy closer.

An inspiration flashed into Simyon Andreitch's mind: "I shall have that boy up to the house to play for Pavl Kirilitch. I'll have him up this evening, and he'll sit in my room, and I'll open the door a little so that the *Barin* may hear him." Then, turning to the boy, "Meesha, little sonny, I want you to come over to the house this evening to sing me that song." And Meesha consented to go, provided Simyon Andreitch would not let the *Barin* see him.

At evening, Meesha and the old steward were sitting together in the little office, and the *Barin* sat in his chair before the fire sadly watching the dying embers. Meesha was not at his ease so near the *Barin*, but, nevertheless, when Simyon Andreitch whispered to him to sing, he took up his old mandolin, and all his innocent confidence returned as he sang the quaint little peasant song:—

"The sun is God's lamp in the sky;
And its light streams around us all day.
We rejoice as we work, as we play.

"There are stars and the pale moon on high,
When the night closes round us at rest;
And His lamp has gone down in the West.

"The dear Lord with His care ever nigh,
Sends us all, gives us all, in large store;
And is waiting to bless us with more."

The voice of the singer was the voice

of an angel, and the sick *Barin* heard it, and listened, and gave a deep sigh when the song was finished. Then he rose and closed the door into the steward's room, and both Meesha and Simyon Andreitch thought they heard him weep. And when Meesha saw that Simyon Andreitch was also weeping, he stole away to his own home, and thought it all over to himself, and wondered.

Next evening, at the steward's request, little Meesha again appeared at the great house. All his dread of the *Barin* had somehow vanished. When Pavl Kirilitch heard the first fingerings of the mandolin, he cried out, "Send that boy here." And Meesha entered the room where sat the tortured man, who was passing through the valley of humiliation, and wrestling with the demon of remorse.

"Sing that song beginning, 'The sun is God's lamp.'"

Meesha sang it.

"Have you any more songs?"

Meesha smiled, "Many."

"Sing another."

Then the child struck some chords, and sang one of the sweetest of the Russian folk songs:—

"O rich black earth, all streaked with snow,
On cloudy April morning;
The green headlands, the fresh-turned row;
Young leaves the trees adorning.

"Spring, spring on earth, in sky, in air;
Spring that will ever waken
The saddest heart sunk in despair,—
Thinking itself forsaken.

"Spring! We will sing thy praise indeed,
And bless thy welcome coming;
And raise our hearts forever freed
From winter's drear benumbing."

Pavl Kirilitch leaned forward, and with his two hands drew the boy's head close to him, looking long and fixedly with his stormy, heavy eyes on the bright and fearless young face. Then he passed his great hand slowly through Meesha's auburn curls, gazing wistfully; and still closer he drew the boy's head, and kissed his lips. Meesha loved the *Barin*, and sank on his knees beside him.

"Your name is Meesha; isn't it? Come to-morrow, Meesha"—and the man's voice was hoarse, and choked, and broken—"but, before you go, sing me one more song, Meesha, Meeshurka."

Meesha rose. He was solemnized by

the strange scene through which he was passing. He remembered that when he lost his mother a year ago, the schoolmaster, whom he loved, came to his father's *izba* and sang some beautiful words, which he afterward taught him. Meesha remembered how the schoolmaster's song had cheered him in his sorrow, and he thought that if the *Barin* is in great trouble, perhaps it might do him good also.

So Meesha sang—his great blue eyes wide open and gazing intently at the *Barin*:

"When the Lord turned again the captivity of Zion, we saw as in a dream. Then our mouth was filled with rejoicing, and our

tongue with song. Then said they among the nations: The Lord hath done great things for us: we rejoiced. Turn back, O Lord, our captivity, as the streams at noonday. Those that sow in tears, shall reap in joy. Sowing in tears the seed, he shall return with joy, bearing the sheaves." *

These are the grand old words sung by the Russian boy; and as he sang, sunlight entered the soul of Pavl Kirilitch. His captivity was turned; and his stony heart, so long filled with hatred, with the memory of sin, began diffidently to hope that there was perhaps a place of repentance for him, if he sought it carefully through tears and humiliation and prayer.—*Good Words*.

SOCIAL PROBLEMS AT THE ANTIPODES.†

BY GENERAL BOOTH.

NOTHING could have been heartier than the manner in which I was received by the officials of the Government. They seemed to recognize me as a friend of law and order, and to regard our twelve hundred officers working all over the Continent of Australia, as in a kind of partnership with themselves for the advance of the commonweal. My reception at Hobart Town was a forecast of all my later receptions, and will serve to illustrate them. The Premier and the Minister of the Treasury came on board the steamer to meet me, and I was entertained by the latter. In the same way at Brisbane, every person of note came to greet me, and in other colonies, Sir Henry Parkes and other leading men availed themselves of every possible opportunity of manifesting the confidence which they had in the work that the Army was carrying on. I praise God and take courage.

My comparatively brief stay in the Southern Continent convinced me that the Australians are in possession of the most magnificent inheritance that has ever fallen to the lot of a young nation. All that is required to ensure them a splendid future, and to make them in the days to come the United States of the Pacific, rivalling the

great American Commonwealth in prosperity and influence, is a large increase of population and a strong Government. The one danger that confronts Australian politics is the danger which results from the fear in the minds of the legislators of the people whom they ought to govern. The constant danger of losing their seats is always before their eyes.

Speaking somewhat hastily of the characteristics of the Australians as they impressed themselves upon me I should say that they are far more English than the Americans. They are hearty, friendly, and outspoken. They especially possess those qualities which may be described as sailor-like—the qualities of the man who has gone through many difficulties to attain to the position which he at present occupies. It seems to me that the greatest danger which confronts them is the danger which comes from prosperity. They are in constant peril of setting too much store on the good things of this life. Their attitude is too much like that of the bishop whom, when he was dying, his chaplain endeavored to comfort by telling him that there was a better place prepared for him. The bishop replied with a good deal of force, "I don't want a better place than ——— Palace and £10,000 a year; that is good enough for me."

The besetments of a young nation are very similar to those which come to a

* Translated from the ancient Slavonic.

† A portion only of the original article is used in the *ECLECTIC*.

young man. The hilarity and vigor of youth lead to a love of excitement, with all its consequent dangers. One manifestation of this is to be found in the terrible hold which gambling has upon the Australians. It comes well-nigh to being a national calamity. Boys at school, servants in families, and every class of society from the highest to the lowest, are infected with this moral disease. Almost every small town has its own race-ground, and facilities for gambling are permitted by the law, in the most deplorable fashion. Another manifestation of the same thing is to be found in the tremendous passion for outdoor sports. I was told by one lady whom I met that her son had been at a school where sports received much more attention than education. These are blemishes and defects almost inherent in a young nation, and especially in one which has known such unparalleled material prosperity as has fallen to the lot of the Australian colonies.

At the same time, I should by no means be inclined to say that there is more vice in the Australian colonies than in the older nations of Europe. It may be more barefaced, just because of the very vigor of the national life, and also because of the very much smaller influence exerted by public opinion. Australia is a very long way off. The family that has a scapegrace son feel this, and they say, "Where shall we send John? It's not far enough to America, it's not far enough to the Cape, let us send him to Australia." What is the result? He feels that he is far enough away from home to do just what he likes, and becomes the prey of the very same class who were his danger at home, and goes down to destruction, unless he be rescued by the Salvation Army. The very openness of his immorality is due to the fact that he has left home far behind, and that no one whose opinion he values knows him in the colonies.

THE LABOR PROBLEM.

When we come to deal with the labor question in Australia, we find very much the same evils there as at home, though not in the same proportions, notwithstanding the boast of Australia that it is "the Paradise of the working man." There are many working men to whom it proves in no sense a Paradise. Lady Jersey told

me in the course of one of our conversations that she had been waited upon by a deputation of ladies to urge her to take up the cause of seamstresses, many of whom were only earning five shillings per week. A striking proof of the comparative similarity between the condition of the labor class in the large Australian towns and in this country was afforded me on one occasion when I had been invited by a Chinese tea-merchant to discuss these matters at his house. I was surprised to find that he had got a number of representative men together to meet me on this occasion, and among them some representatives of the labor party, who were arranging to get up a demonstration to denounce me and my proposed schemes as likely to injure the Australian working man. I said to them, "If I had been going back to England intending to say to the carpenters and the builders and the plumbers and the blacksmiths, 'Australia is a Paradise for you,' it is probable that they might have listened to me, and that there might have been a large emigration of men who would have competed with you. I do not, however, propose to do anything of the kind. All that I intend to do is to bring men out to this country who will develop the agricultural industry of the country." One of the labor members of Parliament present thereupon made the following statement. He said: "A short time since, a census was taken in Sydney of fifty of the most representative and most respectable artisans in New South Wales. It was found that they were earning on an average only £2 a week each, and that of this sum they paid twenty per cent in rent."

As another illustration of my contention that the conditions of the laboring class in the Australian towns do not largely differ from those which prevail at home, may be found in a statement made to me by the second largest ship-owner in New South Wales, who was introduced to me by Sir Henry Parkes. He told me that although it was true that the dock laborer got a shilling per hour for his work, there was such a large number of men seeking this work that the majority of the dock laborers lived in a state of constant poverty. This statement is confirmed by a telegram which appeared in the *Times* of February 19th, in which it was stated that the authorities at Sydney had opened a

Labor Bureau (an imitation of the Salvation Army's), and that four hundred men out of work registered on the first day. This means a great superabundance of men. It means that there is the same deplorable centralization going on in the large Australian towns to-day that we find to be such a grave social danger at home. Even when emigrants go from the old country and settle on the land, their sons and daughters find their way to the cities to increase the pressure there.

THE REMEDY.

My remedy for all this is to get the people there, as in this country, to work on the land. I am well aware that we are confronted with the difficulty that "man does not live by bread alone," that the real reason why the people crowd to the centres is because they care more for excitement and all that city life gives them than for the mere ability to subsist comfortably. In seeking to remedy this state of affairs, I would therefore insist first of all upon the thorough instruction of the people in the evils of the present state of affairs. I would then lay it down absolutely that charity must come to an end. There must be no more giving out of doles. Money must not be handed over to the destitute unless they are prepared to make a return in labor. Those who are unable to work must be supported, but the idle able-bodied men must be compelled by Government to work. Idleness must be treated as a crime. Having instructed the people in the necessity for a return to agriculture, the Government must transfer them from the crowded centres to the agricultural districts by compulsion if all other means fail.

The next step upon which I should insist would be the formation of industrial villages, with plenty of provision for recreation and other amusements, and, above all, for the development of the higher side of human nature by religious services. The present system is entirely wrong. One hundred and eighty acres are granted for nothing to one man with only a few pounds of capital. He finds it impossible, with his limited capital, to work such a large farm. He borrows money, and gets into further difficulties. If he has energy and courage, he fights his way through; if not, he caves in. But even if he succeeds, what happens? Here he

finds himself in the midst of one hundred and eighty acres, which separate him from the rest of his fellows, and prevent that social intercourse which is as necessary to man with his social faculties as the very bread he eats. Instead of giving him one hundred and eighty acres, I would give him six acres for spade culture, and a run for his horse and cow. I would then find him implements, plant his orchard, provide him with a horse and cow, and everything else that was necessary to start him, and then surround him with a community similarly circumstanced. In such conditions the temptation to migrate to the town would be reduced to a minimum.

I am well aware that I shall be told that this is not work for a Government to undertake. I shall be told that, though there may be plenty of good land in one part of an empire and men starving for want of that land in another part of that empire, it is not part of the duty of the Government to remove men from the crowded centre to the open country. I reply to that objection by asking my objector what would be his opinion of a Government which had abundant corn stored in granaries in one part of its domains, and a population starving for want of bread in another part? Would not the whole world execrate the Government which refused to convey the corn to the starving multitudes? What, then, shall we say of a Government which has millions starving for want of land in one part of its dominions and millions of acres of land unoccupied in other parts of the same realm? Instead of attending to these matters we have a Government which spends its time in debating Home Rule, Local Government for Ireland, and similar topics, all of a most absolutely secondary importance to those which we are now considering. I am reminded by such conduct of the nurse who was left in charge of a baby, and when the mother returned and found the baby burned to death, the nurse excused herself by saying that she had saved the baby's fine clothes. Truly our Government is attending to the clothes while the body politic is being destroyed.

I have not submitted my scheme to a single practical politician or a single labor leader whose objections have not been silenced. All that they can tell me is that I am treating the people too much like

children. My answer is that this is absolutely necessary; that the people prove themselves to be children, and as such they must be treated in order that they may be taught to become men and women. We do not go to children's schools and say: "Now, boys and girls, we want you to hold a little meeting this morning, and decide by vote how much time you would like for playing marbles, and how much for learning your lessons." We decide for the children what they need. Or let me take another illustration. The shepherd who has a flock of sheep which has eaten all the pasture in one field does not leave the sheep in that field, but he drives them to another field, and if the sheep have a spark of sense they will be grateful for being driven.

There are three elements in national wealth—Production, Preparation, and Distribution. In the present state of civilization the last two elements have had sufficient attention; but what is the good of this if there is no production? As I said to the Australians: "You have here boundless wealth and luxury; where did it all come from? It certainly did not drop from heaven; it came out of the earth, and where you four millions have got your riches from there is enough to provide for a hundred millions." I pointed out to the people in Brisbane that near their city was a splendid tract of country known as the "Darling Downs." This country would not require manure for years to augment its fertility. It is held by squatters, and used for sheep runs. There is enough land there to contain the whole of my three millions who make up the "submerged tenth" in England, and I assured them that if these three millions were planted down there, and walls built round them reaching up to heaven, and the gates sealed up forever, the three millions might live there and never trouble any one till the Resurrection morn.

The Chinese in Australia, though they are hated by the Australians, are showing what can be done by land culture. The Californians, in their large wheat-growing tracts, produce fifteen bushels of wheat to the acre, the Englishman twenty-seven bushels to the acre, the Scotchman thirty-five, the English allotment holder forty-five to fifty, the Chinese, with his careful use of every available drop of manure, and his painstaking care for each clod of

ground, would produce about a hundred bushels to the acre. This shows conclusively that my main contention is right—that ground, like everything else, produces in the exact proportion to the amount of labor expended on it.

I am well aware that any scheme which involves the peopling of these fertile tracts with the men necessary to cultivate them thoroughly would mean a great expenditure of money. At the same time, it cannot be too often pointed out that we are spending in England to-day £10,000,000 for the administration of our Poor Law, and another £10,000,000 for private charity. This is mere amelioration, and leaves the country at the end of the year in just as bad a plight as at the beginning. This £20,000,000 is lost capital every year that it is expended, but let the £20,000,000 be expended on my plan, and if sunk for ten years a great property would be created.

I have had large tracts of land offered to me in the Australian colonies for nothing, which, when cleared, would be worth £20 an acre. What I ask is that the Government should advance the money necessary to carry on this work, and take the land as a security. The land in my farm at Hadleigh cost £18 an acre, and I am assured on competent authority that in a few years this land will be worth £50 an acre. Two of the members of the Government (one a Cabinet Minister) have been to Hadleigh recently, and have expressed their gratification at the success of the work which is there being carried on. I am prepared to spend £25,000 in developing an Over-the-Sea Colony on the lines which I have described, and, when that £25,000 is expended, I shall ask the Government to advance another £25,000 on the security of the property already created, to further extend the work.

I do not hide from myself the fact that the agriculturist is to some extent inclined to object to my scheme, on the ground that if it be largely successful, it will lower the price of agricultural produce. My answer to this is that such pastoral communities as I hope to establish will largely consume their own produce, as they will tend to become industrial villages. Meanwhile, the condition of the working man in the crowded centre will be so much improved by the removal of surplus labor that he will become a better customer to the agriculturist than he could otherwise

be. What happens at the present time is that you have four hundred men with work for three hundred and fifty. It does not help matters for the three hundred and fifty trades unionists to swear at the fifty blacklegs. I say to the trades unionist, "Help yourselves by all means against the rapacity of the capitalist when he is rapacious, but the solution of your difficulties is not to be found in all this, but in making more work. This can only be done by leaving the towns and getting to work on the land."

Many difficulties will be quoted as likely to interfere with the working out of my plans. On my return to England I came by the wonderful Mont Cenis railway. There were many difficulties in the way of that railway. Capital, skill, and disciplined labor had to be used to overcome them; but they have been overcome, and now you have a splendid road from Italy to France. In the same way I insist that the difficulties in the way of the develop-

ment of my scheme can be overcome by skill, capital, and authority. I am convinced, as I believe the English public will be convinced before long, that the necessary skill and the necessary authority for carrying out this great work are to be found in the organization of the Salvation Army. The English people, either through their Government, or by voluntary subscriptions, must advance the necessary capital. If I cannot raise it in any other way I must borrow it at 3½ per cent. But the money must be raised, and then the work of transferring the surplus population from the crowded centres of England to the unoccupied fertile tracts of Australia and our other colonies will be accomplished, if not in as short a time, yet with the same precision and certainty that have characterized the construction of the great international thoroughfare from France to Italy through the very foundations of the Alps.—*Contemporary Review*.

MR. MEREDITH IN HIS POEMS.

BY PROFESSOR EDWARD DOWDEN.

ONE of Mr. Meredith's disciples has expressed a hope that at least his master's verse may be saved from the intrusion of the literary excursionist and holiday tripper. Vain hope! To name any Parnassian *aiguille* as inaccessible is to invite some hardy mountaineer to essay its conquest. By and by a pair of climbers follow in the solitary explorer's track; next, an adventurous lady, roped and accompanied by guides; then a lady more adventurous, who discovers a second way of ascent, and whose achievement is duly blazoned abroad. Presently, the needle-point is declared to be no barren peak, but a pleasant table-land; a company, with limited liability and unlimited power of talk, exploits the discovery; hotels crown the summit: from base to brow runs the railway scientifically engineered; personally conducted parties troop and bustle; and picnics remain in evidence by scattered fragments of the beer-bottle, greasy papers, broken corks, and morsels of bitten sandwiches, that moulder in the sun. After all, why not? Let not our literary daintiness be over-nice. The great writers

are hospitable, and afford ample space for comers of all kinds. A poet, if there be a little granite in him, will survive his worst and best admirers. His sunshine and air are better antiseptics than our daintiness.

One who has no part in that "cult within a cult," of which the fervent disciple speaks, may yet be of the opinion that it is worth while to make acquaintance with the poetry of Mr. George Meredith, and all the more so because that poetry really sets up no petty æsthetic temple of its own, but belongs, in its degree, to the National Church of English Letters. Mr. Meredith composes hymns in honor of Mother Earth, whose rain and dew drop upon the evil and the good; such hymns, if they are worthy of their theme, can be meant for no clan or coterie or conventicle. And, in fact, their maker has said as much in his poem of *The Thrush in February*.

"So mine are these new fruitings rich
The simple to the common brings;
I keep the youth of souls who pitch
Their joy in this old heart of things."

Mr. Meredith's joy is indeed in the old

heart of things—the wheat-field and the upland lawn and the fir-wood, the sun and the wind and the rain, the ways of bird and beast, the gladness of earth in man's and maiden's blood, and this refining itself to the swift play of intelligence, and the rapture of the spirit. It is none the less true that, in celebrating the simple, he is often highly elaborate and ingenious, and that he presents the common in curiously uncommon ways. But when we have learned how to straighten out his twisted phrases, to leap his airy chasms of remote associations, to catch a prospect through his eyelet holes of intelligence, to practise a certain legerdemain and keep five balls of meaning a dance together in the brain—when we have learned these various things and several others, then the total significance of Mr. Meredith as a poet is found to be good; is found to be sound and sweet and sane, seed for a hopeful sowing and clean wheat for our quern.

Of course, it may be said that the demands which Mr. Meredith makes of his readers are exorbitant, and that a difficult style is necessarily a bad style. A student of the history of literature, however, knows that the charge of obscurity, which is one of the charges most confidently brought by contemporaries, can be finally adjudicated on only by time. It may be sustained, or it may be refuted. To many of his contemporaries Gray was a tangle of difficulties; for critics of authority in a later period Wordsworth and Shelley and Coleridge wrote unintelligible nonsense; and in our own day we have seen the poetry of Robert Browning slowly but surely expounding itself to a generation. Even caviare, it seems, may become a little fly-blown. Perhaps Mr. Meredith's style is difficult; but difficulty is a relative term, and experience should have taught us that this is a point on which it is wise to reserve an absolute judgment. Sword-practice is difficult to those who have not exercised the muscles of the wrist; and some dancers who foot it merrily in the waltz stand grim against the wall looking condemnation at the lifted leg and pointed toe of the *pas de quatre*. If Mr. Meredith can teach young folk to dance to his music, the most reluctant of us will be forced to admit by and by that he has achieved what is the essential thing. Meanwhile it is lawful for any one who pleases to raise a

sceptical eyebrow and put the question, "But will he?"

In guessing at the answer to that question we may find some help from considering another: What has Mr. Meredith to say, be his manner of saying it good or ill? In a dozen volumes of prose the eager student of human nature has told us of his discoveries. Prose is proved by the achievement of his forty years of authorship to be the main stream; verse is no more than a slender affluent. But both are *Dichtung*, and both, it may be added, are *Wahrheit*. Or, to vary our metaphor, the *Dichtung* written in prose is the lake, broad-bosomed, with countless coves and creeks; the *Dichtung* written in verse is a lakelet higher among the hills, less easy of access, but open to the skies and to the passage of the stars, though at times involved in wreathing mists; and a stream runs down from lakelet to lake, connecting the two—for Mr. Meredith's prose is at times such prose as a poet writes, and the thought and feeling expressed in his novels are fed from the contemplations of a poet. His subtlety and his analytic power have in the novels a wider range for play; his faith and hope are more directly expressed in his verse. In both prose and verse his felicities are found in infelicity—or what for the present seems such; his infelicities are found amid felicity; he is at once a most alluring and a most provoking writer.

In a generous letter of protest against one of Mr. Meredith's reviewers of thirty years ago—a reviewer who had complained of *Modern Love* as dealing with "a deep and painful subject on which the writer has no conviction to express"—Mr. Swinburne denied to poets the right to mount a pulpit: "there are pulpits enough for all preachers in prose; the business of verse-writing is hardly to express convictions." Yet certain poets at all times have chosen to assume the attitude of teachers or preachers. Spenser defined his purpose in the *Faerie Queene* as that of "fashioning a gentleman or noble person in virtuous and gentle discipline." Milton, in *Paradise Lost*, would—

"assert Eternal Providence
And justify the ways of God to men."

We can hardly believe that when Milton wrote those words he was full of his fun.

Pope alleged as the peculiar merit of his *Essay on Man*, that it steers between the extremes of doctrines seemingly opposite, and forms a temperate yet not inconsistent system of ethics. Fortunately or unfortunately for his art, Shelley was a persistent preacher on texts chosen from *Political Justice*. "I wish either to be considered as a teacher or as nothing," said Wordsworth. Philosophy, declared Browning, is at the base of poetry. The doctrine of Stoicism modified by a doctrine of culture is nobly preached in Matthew Arnold's verse. The poet who proclaimed himself the idle singer of an empty day, one who had no power to sing of heaven or hell, now declaims with poetic rage against the hell of capitalism and competition, and prophecies of the terrestrial heaven of the Communist. Some one has even been found to set forth in a review—and the task was no unworthy one—the theology of Mr. Swinburne. No reader of the poems of Mr. Meredith, now when his orbit as poet may be more nearly determined than was possible in 1862, can doubt that he has convictions and that he desires to express them. He, too, like all the larger spirits of this age of inward trouble and perplexity, whether with or against his will, must needs be a preacher.

In a recently-published *Lives of the Saints*—motley saints of the Positivist Calendar—it is mentioned among the grounds of Shelley's canonization that he quickened in a high degree our sense of reverence and awe for the great fetic, the Earth. To Mr. Meredith's imagination and affections the great fetic is the mother at whose breasts we hang, from whose life we draw the milk that feeds us, and before all else he would inspire his disciple with filial loyalty and filial love. His feeling for nature is not—at least in its root, however it may be with the flower—the Wordsworthian sense

"Of something far more deeply interfused,
Whose dwelling is the light of setting suns."

He prefers the word Earth to the more abstract word nature, and hugs reality. "I remember Mr. Wordsworth saying," writes a friend of the poet, "that, at a particular stage of his mental progress, he used to be frequently so rapt into an unreal transcendental world of ideas that the external world seemed no longer to exist in relation to him, and he had to reconvince

himself of its existence by clasping a tree, or something that happened to be near him." Mr. Meredith never loses his hold upon things actual and positive; he clasps the tree, observes its intricacy of branches, studies the wrinkles of its rind, can almost hear the murmur of the sap, catches sight of the squirrel scurrying aloft, sees every tit and finch that peeps or perches; and then through the real he discovers—as real also—the spiritual. He is the physician Melampus of his own admirable poem:—

"With love exceeding a simple love of the things
That glide in grasses and rubble of woody
wreck;
Or change their perch on a beat of quivering wings
From branch to branch, only restful to
pipe and peck;
Or, bristled, curl at a touch their snouts in
a ball;
Or cast their web between bramble and
thorny hook;
The good physician Melampus loving them
all,
Among them walked, as a scholar who
reads a book.
"For him the woods were a home and gave
him the key
Of knowledge, thirst for their treasures
in herbs and flowers.
The secrets held by the creatures nearer
than we
To earth he sought, and the link of their
life with ours:
And where alike we are, unlike where, and
the veined
Division, veined parallel, of a blood that
flows
In them, in us, from the source by man un-
attained,
Save marks he well what the mystical
woods disclose." *

Like the physician Melampus the poet would not soar to the spiritual meanings of earth by any transcendental flight, but would master the text, with all its minute difficulties, as an exact scholar, and so at last attain to the innermost purport of this book of life.

Such a study implies faith at the outset, and it implies courage. Some of the meanings of Earth lie indeed upon the surface—her summer meanings, her messages of pleasure to the blood. If these are easy they are none the less precious:—

* *Save marks he well*: i.e., unless he marks well.

"Call to mind
The many meanings glistening up
When Nature to her nurselings kind
Hands them the fruitage and the cup!"

There is nothing of the ascetic in Mr. Meredith, unless we use "ascetic" in the nobler sense, meaning one who values strength and hardihood attained through discipline. He finds that blood nourishes brain, and wholesome blood means wholesome animal delights :—

"Life thoroughly lived is a fact in the brain,
While eyes are left for seeing."

Very charmingly, and with a touch of the great geniality of nature in her hour of animal awakening, Mr. Meredith has told his tale of "The Appeasement of Demeter." The beloved Proserpine has been snatched below; it is the season of dearth and almost despair :—

"Lean grass-blades, losing green on their
bent flags,
Sang chillily to themselves; lone honey-
bees
Pursued the flowers that were not, with dry
bags;
Sole sound aloud the snap of sapless trees,
More sharp than slingstones on hard breast-
plates hurled,
Back to first chaos tumbled the stopped world,
Careless to lure or please.
A nature of gaunt ribs, an Earth of crags."

The description is hardly less admirable than Keats's night of frost. Man and woman, youth and age, are shrunk, cheerless, lost in the sloth of hopeless hours, wagging the tongue with weak and birdlike voice. Demeter stands yet wrathful in the vale, nor can her once glad naiad of the mountain-rivulet, Iambe, at first awaken forgiveness in her heart. But Iambe has some shadow of laughter in her still, and a woman's brightness of craft; above the moan of human prayer she raises the cattle-call, and slowly from among the droves a horse and mare—"the wrecks of horse and mare"—defile into the presence of the queen :—

"Howbeit the season of the dancing blood,
Forgot was horse of mare, yea, mare of
horse:
Reversed, each head at either's flank, they
stood.
Whereat the goddess, in a dim remorse,
Laid hand on them and smacked; and her
touch pricked.
Neighing within at either's flank they licked;
Played on a moment's force
At courtship, withering to the crazy nod."
And, presently, the Great Mother, touched

by this faint symbol of all the vast and genial joy of earth, laughs aloud—laughter "like thunder of the song of heart;" the curse is rent; gladness, like a thousand runnels from the hills, descends upon the valley and the valley-fulk, and beast and bird; the "kindly lusts" inspire them once again; the plough drives in the furrow, and the blade springs green above the brown :—

"O Laughter! beauty plumped, and love
had birth,
Laughter! O thou reviver of sick Earth!
Good for the spirit, good
For body; thou to both art wine and
bread!"

Our English people, Mr. Meredith inclines to believe, have less need of their pious exercises, conjoined with "hog-gery," than of a wise "schooling in the Pleasures." He distrusts profoundly that way of piety which begins by rejecting God's first gift—the earth itself, its schooling, its toils, its joys. Shall we fancy that we have wings to our shoulders and name this earth of ours Dust and Ashes? or shall we run the glad furrow and turn the soil? Shall we view Earth as a "damned witch," fair to the eye but full of foulness? And is this piety to Him who gave us so excellent a habitation?—

"We, pious humpback mountebanks, mean-
while
Break off our antics to stand forth, white-
eyed,
And fondly hope for our Creator's smile,
By telling him that his prime work is vile,
Whom, through our noses, we've re-
nounced, denied."

No; there is a better way of religious service than this—a way of faith and labor and joy :—

"And are we the children of Heaven and
Earth?
We'll be true to the mother with whom
we are,
So to be worthy of Him who, afar,
Beckons us on to a brighter birth."*

Fidelity to Earth is indeed fidelity to that heaven in which Earth lives and moves and has its being.

With *The Appeasement of Demeter* should be read *The Day of the Daughter of Hades*, and *Phæbus with Admetus*. Each poem—and to these may be added

* This and the quotation immediately preceding are from the *Ode to the Spirit of Earth in Autumn*.

as a third, *The Lark Ascending*—is a song of the joy of earth. When Proserpina returns from the under world, she bears with her, on a morning, the shadow-born daughter of Hades, to whom one glad holiday in the sunshine is granted; and slipping from the car, the maiden has for her companion throughout this day the young singer, Callistes. In the valley among the vines, among the wheat-fields, among the olive-groves, by the lake margin, by the stream-side, in the brakes, in the pine-woods, upon the mountain heights, go by this morning of delight, this noon with its deeper bliss, this evening with its thunder-showers and racing torrents, a day of mingled joy and alarm to the human heart of young Callistes, but of fearless joy to the maiden who can interpret in her song the good meanings of the earth:—

“That song
Of the sowing and reaping, and cheer
Of the husbandman’s heart, made strong
Through droughts and deluging rains,
With his faith in the Great Mother’s love:
O the joy of the breath she sustains,
And the lyre of the light above,
And the first rapt vision of Good,
And the fresh young sense of Sweet.”

Something of Demeter’s laughter—that of a god at sight of the play of pleasure in a humbler sphere than the realm of gods—may be divined in the maiden’s fond regard for Pan and her innocent curiosity about his ways:—

“The sacred loon,
The frolic, the Goatfoot God;
For stories of indolent noon
In the pine-forest’s odorous nod,
She questioned, not knowing: he can
Be waspish, irascible, rude,
He is oftener friendly to man,
And ever to beasts and their brood.
For the which did she love him well,
She said, and his pipes of the reed,
His twitched lips puffing to tell
In music his tears and his need,
Against the sharp catch of his hurt,
Not as shepherds of Pan did she speak,
Nor spake as the schools, to divert,
But fondly, perceiving him weak
Before gods, and to shepherds a fear,
A holiness, horn and heel.”

Yes, with all his weakness, the frolic Goatfoot is sacred, and he should be dear to the lovers of Earth.

But a true lover of Earth must be a hardy lover, caring for more than her soothing touch and soft caress, able to read her heart even though she should frown or seem cold and indifferent. Mr.

Meredith is bent above all to understand her meanings that are severe, yet kind in their severity; those ways of hers which train us for the battle-field rather than the bower. Is it later autumn when foliage flies, and the skies are of slate, or when the mist lies low, and

“Narrows the world to my neighbor’s gate;
Paints me Life as a wheezy crone”?

Let us master the blood; let us not live by the senses; let us read deeper into the life of earth, and we shall see that all is well. Under the surface, in this season of chill, there is the fire of a great hearth. Mother Earth is not sluggish nor cold:—

“Under the surface she burns,
Quick at her wheel, while the fuel, decay,
Brightens the fire of renewal: and we?
Death is the word of a bovine day,
Know you the breast of the springing To be.”

Or, again, is the bitterest of east winds hissing?—is the land whipped and shorn by the gale; the sky hurried on and obliterated by flying cloud-rack; and are the mouths of men locked grimly as they wrestle with the blast? For the senses it is hard; but once more let us read deeper, and what shall we discern? What but Life sitting at her grindstone—

“That she may give us edging keen,
Sting us for battle, till as play
The common strokes of fortune shower.
Such meaning in a dagger-day
Our wits may clasp to wax in power.”

It is through contention and struggle that blood is mastered, and brain wins its due supremacy. Earth has always loved the strong; once she loved her old Titan brood, and now she cares for their modern successors who strive with mind more than with muscle; she would rouse her chosen ones out of the soft life of sensual ease, she would teach them mastery and self-command, so that brain may grow out of blood, and brain in its turn be developed into soul.

But does Earth indeed care at all for her offspring, Man? Are not the laws of nature regardless of humanity, and ruthless in their blind persistence? Mr. Meredith has no desire to cheat himself with words; above all else he seeks reality. Is there, then, in truth this opposition between man and nature? Is there this breach of continuity in the universe, or rather is not man the crowning part of nature—nature evolving itself, or being

evolved, into mind and soul? And are not the laws of human nature her laws? Man's lovingkindness, his mercifulness, his passion for righteousness, are they not the flower and fruit of her long obscure endeavor? Is not in truth their root in her? And what if the seeming cruelty of Earth to her child, Man, be no more than a wholesome severity, needed in order that he may advance through brain to soul, and from bestial up to spiritual? Her desire all along was no other than to speed the race; her fear, that man might falter and wax faint:—

"She, judged of shrinking nerves, appears
A Mother whom no cry can melt;
But read her past desires and fears,
The letters on her breast are spelt."

It is through strife and through suffering that such advance as the world can boast—an advance like that of a drunkard who bears a pack and reels from side to side, yet still keeps on his way—has been made. Hence, though Mr. Meredith perceives our national need of "schooling in the Pleasures," he is no sedate philosopher at ease in the garden of Epicurus. That garden was indeed—

"A shining spot upon a shaggy map,
Where mind and body, in fair junction free,
Luted their joyful concord."

That garden was a happy nursery of gentlemen; but the higher wisdom is not attained by the "long drawing of an equal breath." There is wilderness to be reclaimed outside the ordered garden; and so for the needs of our world better than the philosophy of Epicurus is

"The crucifix that came of Nazareth."

Let us not suppose, however, that even in what is highest in our religions or fairest in our ideals we can sever ourselves from the good Mother Earth. What we deem divine, and what indeed is divine, is but the natural evolved to its perfect flower in the spirit—

"Man builds the soaring spires,
That sing his soul in stone: of Earth he draws,
Though blind to her, by spelling at her laws,
His purest fires."

"Intellect and reverence," writes Mr. Meredith in his latest novel, "must clash to the end of time if we persist in regarding the Spirit of Life as a remote externe, who plays the human figures to bring about this or that issue, instead of being beside us, within us, our breath, if we

will; marking on us where at each step we sink to the animal, mount to the divine, we and ours who follow, offspring of body or mind."

Thus then, according to Mr. Meredith's teaching, external nature loses its cruel sphinx-like aspect as soon as we read its meaning with the soul; as soon as we perceive the unity of the cosmos, and know that it constantly climbs upward from sense to spirit, and that spirit signifies for us righteousness, love, sacrifice, joy—a joy transcending the poor pleasure which comes through the satisfaction of egoistic greeds. Blood and brain and spirit—these three are co-operant powers, the "deepest gnomes of Earth," and it will go ill with us if we part the friendly triad. We walk on the dark edge of earth under the midnight stars, and they seem remote and cold, shining implacably; little care they for human hungers, hungers of the heart, hungers of the intellect:

"Forever virgin to our sense,
Remote they wane to gaze intense:
Prolong it, and in ruthlessness they smite
The beating heart behind the ball of sight:
Till we conceive their heavens hour,
Those lights they raise but sparkles
frore,
And Earth, our warm-blood Earth, a shud-
dering prey
To that frigidity of brainless ray."

But is not love the gift of Earth? And is not Earth the member of this stupendous cosmos best known to us? And shall we believe that Earth is the sole throne of Deity? It is the craven part of us that quails before the splendor of the stars. If Earth be known aright as one among the starry fold, faith comes to us—faith grounded in reason—by virtue of which we recognize the presence of her life in them, her law in the law to which they move; yes, and even her love in the heart of these, her sister-planets. And so when night wanes, and morning brings back the sight of our old beloved Earth, we see her, touched, through our sense of this sisterhood to strange and remote worlds, with a new glory:

"Then at new flood of customary morn,
Look at her through her showers,
Her mists, her streaming gold,
A wonder edges the familiar face:
She wears no more that robe of printed
hours;
Half strange seems Earth and sweeter than
her flowe:s."

The reader need not be counselled to let that last perfect line linger in his ear and live in his heart.

The mystery of Earth and of its life, is like that of the enchanted Woods of Westernmain—a terror to those of little insight and little faith, but to one who brings brain and spirit, as harmless as are the gliding waves to a swimmer. Possess in yourself a love of the light, and you shall be enabled by it to read every secret of the darkness, and to know that each secret is good. Doubt or distrust, let greeds and egoistic pride darken the light within you, and you are caught in your own trap : all that was innocent and sweet, all that was grave and ennobling in these Woods of Westernmain become dangerously hostile to you in a moment :—

“ Here the snake across your path
Stretches in his golden bath :
Mossy footed squirrels leap
Soft as winnowing plumes of Sleep :
* * * * *
Each has business of his own ;
But should you distrust a tone,
Then beware,
Shudder all the haunted roods,
All the eyeballs under hoods
Shroud you in their glare.
Enter these enchanted woods,
You who dare.”

Mr. Meredith has dared ; and he tells us, as his solution of the mystery, and as the truth by which he lives, this—that the Great Mother, in her joy of life, has given us blood and breath not for sensual uses or luxurious ease, but for endless warfare ; that her medicinal herb can heal all the wounds of our battle ; and that reading to this effect the spiritual meaning of Earth, he can trust her, not in life alone, but even “ down to death.”

Yes, “ down to death ;” for what is a faith but a reed, if it cannot stand its crucial test and extreme trial ? In the *Ode to the Spirit of Earth in Autumn* occur some lines which express with incomparable beauty a trust in the good purport of death founded on a knowledge of the good purport of life :—

“ And O, green bounteous earth !
; Bacchante Mother ! stern to those
Who live not in thy heart of mirth ;
Death shall I shrink from, loving thee ?
Into the breast that gives the rose
Shall I with shuddering fall ?”

But to contemplate our own death with equanimity is not after all difficult for any sane person. There is a trial more cruel

to the flesh and spirit than this. No poem of Mr. Meredith's strikes deeper from the colored surface of things to the hard rock of life, out of which springs water for our needs, than that named *A Trial of Faith*. It is the morning of May-day, and before the holiday children appear at the window the writer goes forth and climbs the hill that he may wrestle alone with his fate ; for the good companion of his life, she, the pulse of his heart, lies upon her death-bed. All the world is glad, expecting summer ; the lark is aloft, and a south wind blows. Memories of her brightness, her sweetness, her Norman birthplace, and the visit to it paid by husband and wife together fill his mind. With heart and brain and soul divided from each other, one thing, and one only, seems to remain with him—the disciplined habit of the observing eye ; all the sights of the May morning enter at that sense ; yet “ this Earth of the beautiful breasts” seems to wear the visage of a hag. Of a sudden an exquisite apparition comes into view ; up the spine of the double combe, something shining like new-born light—or as a banner victorious over death and despair—the pure wild cherry in bloom :

“ I knew it : with her, my own,
Had hailed it pure of the pure ;
Our beacon yearly.”

There are moments of life quickened by pain or by joy, when we become chords sensitive to every musical touch of Nature. Suddenly, by this sight of the shining tree and the sound of the children's voices at their maying, maternal Earth gains entrance to the sufferer's spirit, and a harmony is re-established between heart and brain and soul, which enables him to think sanely and face his sorrow with manly courage. Not, indeed, that Nature sympathizes with our grief, or gives tear for tear ; we weep, bleed, writhe, and she is unmoved. Nor, when we question her of the life beyond earth does she give one sign. Her wheels roll on ; to implore them to pause is the cry of unfaith. To catch at comfort in legends is but an indulgence of our weakness.

“ Earth yields not for prayer at her knees ;
The woolly beast bleating will shear.
These are our sensual dreams.”

Nor will she answer those questions that neither sow nor reap. But one thing Earth gives us, and that the one thing

needful—harsh wisdom, her medicinal herb. Not through pathetic fallacies about Nature, not through legends—once useful for man's growth, but now an evil opiate—shall we win such strength as is attainable, but rather through reality and the true reading of the law of life. And what is this law, but the law of growth from sense to spirit through change and through pain, until a warrior's heart and a reasonable soul are formed within us—

"Mirror of Earth, and guide
To the Holies from sense withheld" ?

If Reason be once active and armed in us, she will wrestle with that old worm, self ; she will pierce the brute in us ; her light will cleanse the foul recesses of his den ; and through our service to her the well of the sorrows within us may also be cleansed :—

"For a common delight will drain
The rank individual fens
Of a wound refusing to heal
While the old worm slavers its root."

And so the sufferer, doomed to the loss of his dearest one, can meet his trial with a human heart :—

"I bowed as a leaf in vain,
As a tree when the leaf is shed
To winds in the season at wane :
And when from my soul I said,
'May the worm be trampled : smite
Sacred Reality !' power
Filled me to front it aright.
I had come to my faith's ordeal."

There are indeed questions which remain unanswered. Is it not enough that we should learn the lesson of our Earth—how through strife and anguish the flesh grows up into the spirit ? And as for spirit, it does not rave about a goal ; it needs not anthropomorphic idols ; it desires neither celestial splendors nor the sleep of annihilation ; it can trust the purpose of Earth ; it uses Earth's gifts and aspires ; it dreams of something higher than itself, and such dreams—those of Reason "at the ultimate bound of her wit"—are serviceable as an atmosphere and widening horizon for the soul, dreams untouched by the lusts of ease and sensual comfort, dreams of the blossom of good, which are as a banner unrolled for battle, upheld by Reason as it presses onward to find the Reason higher than itself, which also we name not Reason, but Beneficence. Mr. Meredith's conclusion of the whole matter, in "A Faith on Trial," is ex-

pressed more concisely in the closing stanza of his lyric, *The Question Whither* :

"Then let our trust be firm in good,
Though we be of the fasting ;
Our questions are a mortal brood,
Our work is everlasting.
We children of Beneficence
Are in its being sharers ;
And Whither vainer sounds than Whence,
For word with such wayfarers."

If it be alleged that such cheerful optimism as this is a matter of temperament Mr. Meredith answers "No ; it is a truth of Reason, tested by the test of experience bitter to the flesh, and not found wanting."

To discover the teaching of Mr. Meredith I have had resort chiefly to poems which deal with the interpretation of nature ; but it is obvious that the true meanings of Earth, as Mr. Meredith conceives them, can be read only through humanity viewed as the chief offspring of Earth. The secret of Earth is to be found neither in the solitude of the fields nor in turbid cities ; it is known only to those who pass to and fro between nature and man :

"They hearing History speak, of what men
were,
And have become, are wise. The gain is
great
In vision and solidity ; it lives.
Yet at a thought of life apart from her,*
Solidity and vision lose their state,
For Earth, that gives the milk, the spirit
gives."

Solidity and vision—these are the needs of a worthy student of life ; solidity, growing from a patient mastery of facts, so that the vision may be other than that of the phantast ; vision, as of a true seer, so that the student may be more than a myopic specialist and mere accumulator of details. The sentimental or pseudo-romantic feeling for nature, which flies to its glooms and grandeurs, or to its pastoral innocences, as a refuge from human society, is, with Mr. Meredith, material for scorn. This is the "bile and buskin attitude" of Byron in his *Manfred* and *Childe Harold* ; and in the duel between Byron—with his dreams of indigestion, his sham misanthropy, his hinted horrors—and "the world of spinsterdom and clergy," there is excellent substance for a comedy. Standing beside the glacier-green Rosanna as it foams and tumbles through its ravine of the Stanzer Thal,

* Earth.

Mr. Meredith sees in its eddying rush, its passion, joy, and trouble, an image of London, or—shall we say?—of life:—

“Here’s devil take the hindmost too;
And an amorous wave has a beauty in view;
And lips of others are kissing the rocks:
Here’s chasing of bubbles, and wooing of rocks.”

To an Arcadian dreamer such fancies must seem a profanation of the sanctity of the spot; for is it not the naiad’s haunt? “Most certainly it is,” replies Mr. Meredith, “but what is the present use of your naiad? If she be useless, she stands condemned by art as no creature of true beauty. Will she fly with the old gods, or join with the new? Come: let us put the naiad to the test.”

“What say you, if, in this retreat,
While she poises tiptoe on yon granite slab, man,
I introduce her, shy and sweet,
To a short neck’d, many-caped London cabman?”

Why not? A scientific professor would prove that she is a mere foam-bow; and a nymph on sufferance must not act my Lady Scornful. In other words, if sentiment cannot wed fact, sentiment must vanish as unfit for this century of ours which honors reality. The nymph lacks a soul, which possibly she may get by wedding the wheezy cabman. Bear in mind that it is a little hard on him too; before he could plunge in the stream he must needs peel off a dozen capes! Thus, with the hearty animal spirits that come of open-air adventure among Tyrolean heights, Mr. Meredith plays with his grotesque allegory. But the meaning is a serious and sober one; he would point out the way in which the delicate spirit of solitary places may live and last—by mingling its life with that of humanity. And has it not in truth done so in the impulse and cheer which the poet bears back from the glacier-torrent to his own English home?

“How often will these long links of foam
Cry to me in my English home,
To nerve me, whenever I hear them bellow,
Like the smack of the hand of a gallant fellow!”

Were ever the gains of holiday travel more gayly recounted?

“I give them my meaning here, and they
Will give me theirs when far away.”

And the snowy points, and the ash pale peaks,
Will bring a trembling to my cheeks,
The leap of the white fleck’d, clear light, green
Sudden the length of its course be seen,
As, swift it launches an emerald shoulder,
And, thundering ever of the mountain,
Slaps in sport some giant boulder
And tops it in a silver fountain.”

Here truly is the Rosanna brought into London, alive and splashing for Piccadilly, if it please.

Those who would make acquaintance with Mr. Meredith’s men and women may begin with the novels; and successive editions prove that now they need no advice to act thus wisely. But the men and women of the Poems form an interesting and varied group. The English figures of humble life, figures humorously treated, which are, perhaps, the best known of the group—Juggling Jerry and the Old Chartist—are by no means the most admirable. The humor of these inventions, or the mingled humor and pathos, is somewhat crude and somewhat self-conscious; the moral is needlessly patent through the poem. I should not greatly grieve if the Patriot Engineer—a modern and degenerate Philip Falconbridge—were interned in some obscure portion of the territory of Limoges, Duke of Austria, where the railway system may need extension. But there is not one maid or wedded woman of Mr. Meredith’s poems, from the lissome beauty of *Love in the Valley* to Archduchess Anne, grim in her struggle between pride and passion, whom we could willingly forget. Even the “Fair Ladies in Revolt,”—though ladies in revolt are not always fair in aspect or in argument—show an admirable art in piercing masculine sophistries and current platitudes. Almost they persuade me to be laureate-logician of their company, though at the risk of becoming the most

“Fool-flushed old noddy ever crowned with buds.”

“I like Mr. Meredith best,” says a critic with whom even to err would be still to remain bright and suggestive, “I like Mr. Meredith best in *The Nuptials of Attila*.” And in making choice of this masterly piece of narrative Mr. Henley assuredly has not gone astray. The enormous life and movement of the army of the Huns is brought visibly and audibly before us; the turbulent sea of humanity surges in

our sight. And our sense of its vastness and its wildness gives us a measure of the power of that short glittering-eyed, thin-bearded, square-chested ruler, who sways to his will this mass of fiery force and passion. And yet there is one stronger than he. Is it Death the conqueror? Or can it be the cold, white girl, his one-night bride, whose fist is no larger than a summer fig :—

"Huddled in the corner dark,
Humped and grinning like a cat,
Teeth for lips!—'tis she! she stares,
Glittering through her bristled hairs.
Rend her! Pierce her to the hilt!"

For a moment longer we see her the central object of wild contention, but now in the calm fit of her insanity, combing her hair, "with quiet paws;" and then in the break up of the vast army Ildico disappears from view; of her we know no more than of a leaf rolled down the Danube.

The most important document in the study of the human heart which Mr. Meredith has given us in verse is doubtless *Modern Love*. "Praise or blame," wrote Mr. Swinburne, "should be thoughtful, serious, careful, when applied to a work of such subtle strength, such depth of delicate power, such passionate and various beauty" as this. Praise or blame seems each equally needless now; the poem has taken its place; there it is, and there it will remain. The critic's complaint that *Modern Love* deals with a deep and painful subject on which Mr. Meredith has no conviction to express, was a natural outbreak of human infirmity; we all like to have the issues of a difficult case made clear; we all like to have a problem worked out to its solution. But in art, as in life, it is not always good policy to snatch at a near advantage :—

"Oh! if we draw a circle premature,
Heedless of far gain,
Greedy for quick returns of profit, sure,
Bad is our bargain!"

Sometimes it is more for our good that art should put a question courageously than that it should propose some petty answer to the question. In *Modern Love*, if Mr. Meredith does not prescribe a remedy for the disease of marriage perverted from its true ends—unless that remedy be the general one of more brain, and so more spirit, more righteousness, more beneficence—he

at least makes a careful diagnosis of the case. It is something to describe the phases of the malady, and to issue no advertisement of a quack nostrum. And in that silence which precedes one last low cry—"Now kiss me, dear! it may be, now!" does not Mr. Meredith make us feel, with a sense too deep for tears, how Pity pleads for Sin? and is not this something as helpful to us as if he had expressed "a conviction on a painful subject"?

One remarkable poem treats, not of a malady in the individual life, but of a crisis in the life of a nation, and here certainly Mr. Meredith does not fail to express clear and sound convictions. The calamities of France in 1870 called forth two English chaunts of extraordinary poetic beauty and virtue, Whitman's cry of cheer amid the gloom, *O Star of France*, and Mr. Meredith's noble ode, first published in *The Fortnightly Review*. Both poems are inspired by love and grief and hope; but Mr. Meredith, having "convictions to express," does not refrain from words of warning and of counsel. France is honored by him as the possessor of what he values so highly—"brain;" and being "Mother of Reason" she is trebly cursed, because she not only feels and sees the cruel blow, but perceives that it is the just punishment of her misdeeds. "Inveterate of brain," let her put her insight to wise uses, and learn from whence true strength proceeds :—

"For Strength she yearns,
For Strength, her idol once, too long her toy.
Lo, Strength is of the plain root—Virtues born :
Strength shall ye gain by service, prove in
scorn,
Train by endurance, by devotion shape.
Strength is not won by miracle or rape.
It is the offspring of the modest years,
The gift of sire to son, thro' those firm laws
Which we name Gods; which are the righteous
cause,
The cause of man and manhood's ministers."

There is a country nearer to his beloved England than is her neighbor France, to which it were well if like counsel were tendered by Mr. Meredith; and the lines which follow on the priestly blessing of banners flung abroad "in the game of beasts," are perhaps not grown altogether out of date.

Mr. Meredith describes his first volume, the *Poems* of 1851, as "extinct." I have

now said my say ; but if space permitted I should willingly add a postscript on this rare volume, a copy of which has had what to Mr. Meredith must seem the misfortune to escape from the hands of a distinguished Home Ruler, to whom it was presented by the author, into those of a recreant Irishman, who loves Mother England, and who also cares for the infants of a poetic spring, even "before their buttons are disclosed." The little volume has much in it that is graceful and even beautiful, and when Mr. Meredith superintends a collected edition of his verse, he should follow Wordsworth's example, and admit, as one section, *Poems Written in Youth*. Meanwhile curious readers, who have not had my own good fortune, may learn something about the poet's *Juvenilia*,

from Mr. Le Gallienne's study of George Meredith.

To many persons, not long since, Mr. Meredith's novels seemed to be the Woods of Westernmain, dark, obscure, and unfrequented. Like Poliphilus, in the Renaissance allegory, they have now emerged out of the dark wood, and are about to refresh themselves from its waters. But in the magical woodcut of Fra Francesco Colonna's romance, at the moment when he stoops to drink, the attention of Poliphilus is arrested by a wondrously sweet song ; with hand already scooped for the water, he pauses and looks up. I shall be pleased if this article touches for any reader of Mr. Meredith's novels the nerve of hearing, and awakens his sense to the song of the bird.—*Fortnightly Review*.

CHICAGO AND ITS EXHIBITION.

BY SIR HENRY TRUMAN WOOD.

(Secretary to the Royal Commission for the Chicago Exhibition, 1893—British Section.)

A BRILLIANT English writer has described Chicago as a "purposeless hell." At certain periods of the summer, the second half of the description is not without justification ; but in what respect Chicago or its population lacks purpose, I am at a loss to imagine. The collective purpose of Chicago is to become the biggest city on the earth. The individual purpose of every citizen of Chicago is to make the greatest possible number of dollars in the shortest possible space of time. The individual very frequently succeeds. The community is in a fair way to success.

To the average Englishman, Chicago is not much more than a name, representing a big city, right in the middle of the United States, probably unfinished, very rough and uncomfortable, possessing for its chief public institutions pork factories, where hogs are converted into bacon by machinery at some unknown rapidity calculated in pigs per minute. We have all heard of the great fire, we have all admired the recuperative pluck which built a new city on the still smoking ruins of the old, but on the whole we know very little about that new city, and what we do know is generally incorrect.

There is, of course, a large class of Englishmen whose business takes them to the States, and who know Chicago as they know New York, or London, or Birmingham, or Berlin. There are also the globe-trotters. A large number of these go to Chicago. They cannot help it, it is on the way to so many places. Many of them, when they come back, write books, most of which are reviewed, and some are read. They generally describe the loathsome scenes of the stock-yards, and the horrors connected with the mechanical slaughtering of pigs. They expatiate on the size of the hotels, give us a few uninteresting statistics of the population and the trade, and then flit away to the more congenial description of details of Mormon establishments in Salt Lake City, or picturesque beauties of the Yosemite and the Golden Gate.

Putting aside, however, the travellers, professional and amateur, I do not think I am far wrong in attributing to my countrymen a very general ignorance about the Great Lake City of the West.

To the inhabitants of Chicago this ignorance is naturally irritating. It must be admitted that lack of self-confidence is an

uncommon failing in Western America generally. Chicago knows all about London and Paris. How can Paris and London be so ignorant, so indifferent about Chicago? Now it appears to me there is one excellent reason why English folk generally do not know much about Chicago of to-day. That is, that it is a city of to-day, not of yesterday. What does a very partial witness * say on this head? "In 1860, it was one of the shabbiest and most unattractive cities of about a hundred thousand inhabitants anywhere to be found, but even then it had more than trebled its size in ten years, the streets were mud sloughs, the sidewalks were a series of stairs and more or less rotten planks: half the town was in process of elevation above the tadpole level, and a considerable part of it was on wheels—the moving house being about the only wheeled vehicle that could get around with any comfort to the passengers."

If this description was true thirty years ago, is there much blame to us if we, four thousand miles away, hold it as true now, failing to appreciate the changes which those thirty years have brought about, ignoring the marvellous advances which have been made in that short space of time? The Western American, accustomed to see cities spring up from the plain like Jonah's gourd, must forgive us if we, whose environment is the slow result of secular development, can hardly believe in the reality of such rapid growth, such instantaneous progress as his.

The present Chicago, that wonderful city, which has risen up in the twenty years since the great fire of 1871, has not had time to make itself known. London, or Manchester, or Leeds to-day is practically identical with London or Manchester or Leeds of twenty years ago. A description of the Chicago of five years back is now obsolete and inapplicable. The pleasant writer from whom I have quote above declares that Chicago has reached a stage when she can afford to be modest. He thinks that her assured position as the metropolis of the West has abrogated the necessity for self-assertion. It must be admitted that his view is not shared by those of whom he writes. Indeed, that particular form of self-conceit which is content with a

supreme confidence in one's own merits is an English rather than an American quality. John Bull has for so long been taught to consider himself as the salt of the earth, and so thoroughly believes the fact, that he is quite satisfied without expecting other people to admit it. Your American insists on his country's merits being admired. He is not content unless you will definitely express your belief in the superiority of American institutions, and if you hesitate to do so, there will be no hesitation in the manner in which he will state his own views on the subject. This is, no doubt, the effect partly of temperament, partly of the novelty of his surroundings. It is a youthful but perfectly honest condition of mind, and it is one that peoples as well as men grow out of with advancing years.*

The only real objection to this intolerance of criticism is that it renders a foreigner wisely cautious about expressing his candid opinion. While he sees much to admire, he will naturally see much that he may not approve. He will do well to confine his criticism to the favorable side. And, after all, that Americans are sensitive to English criticism is but a proof of the genuine love and admiration which they most certainly have for the old country. It is, in very truth, the highest compliment they can pay us.

And when there is so much to admire, what is the use of fault-finding? It is easy enough on all sides, but when it is done, nobody is pleased (except the critic) and nobody is the better (not even the critic). Let us look on the favorable side. There is plenty to see there.

During the next two years it is probable that Chicago will have a far greater number of visitors than in any similar period of her history—transient visitors, that is, for a large proportion of those who go to the city, go there to stay. Of all those millions there will be none, capable of being impressed, who will not be astonished at what they find. In all the world there is perhaps no site better suited for a prosperous city, no site less

* I am by no means certain that it is a bit more objectionable than that insincere depreciation of ourselves and our institutions to which Englishmen are given. An American put this very "straight" to a friend of mine by saying, "We do brag, but anyhow we don't cant."

* Charles Dudley Warner, in his *South and West*.

adapted for a beautiful one. The great lake, stretching far up into the north, compels all intercourse by land between the vast districts on its east and on its west to pass round its southern end, where Chicago is situated. All the traffic over the great inland seas of America and from the Atlantic through them must pass by Chicago to reach the centre of the States and the river system of Southern North America. The establishment of such a trade centre has caused all the artificial channels along which trade flows to direct themselves upon it, and so it has come about that the railway system at all events of the Northern States has focussed itself upon Chicago. It is hardly possible to imagine any conditions, any altered state of things which can deprive the city of the advantageous position she has attained, or give to any rival even a share of her prosperity.

And as the people of Chicago have done their best to utilize to the utmost the commercial advantages of their situation, so also have they endeavored to minimize, as far as foresight and skill can minimize them, its natural disadvantages. Situated on the side of a flat-shored lake, on the edge of an enormous plain, Chicago has not within some hundred miles of it any physical features of beauty or attraction. There is no "country" round Chicago, nothing but an endless monotony of level plain. To atone for this, the designers of the city have determined to inclose within its boundaries as many areas of open ground as possible, and to give to those areas the greatest semblance of rural beauty that they can. They have encircled the city with a splendid ring of boulevards, expanding here and there into magnificent parks, so that no district of the city is without its own breathing-space, its own playground. To-day these boulevards are outside the city proper, or at least form its outer boundaries. To-morrow—in five or six years—they will be within its actual limits as they are already within its theoretical. For the nominal boundaries of the city are miles away out on the prairie. They were made, as Napoleon made streets in Paris, by ruling lines on a map with a big pencil, and even at its present rate of growth Chicago will take a generation or two before she fills out to them. For the comfort of the residents it may be hoped that this desired

result may be long delayed. A city of the actual size of Chicago some eight or nine miles long by four or five wide, is big enough to satisfy all reasonable aspirations. If the citizens could only know the drawbacks of greatness, could realize the hideous inconveniences, for instances, arising from the size of London, they would not be in such a hurry to extend their boundaries.

Fortunately, there is one direction in which Chicago cannot grow, and that is toward the lake. Think how much London would be improved were it set by the side of the sea, with sea-breezes coming up to clear away the smoke and fog—the soft coal burned in Chicago produces a grimy smoke that would do credit to Manchester or Leeds—and to temper, occasionally, the blazing heat of July and August. On the northern side of the town, full advantage is taken of this one natural beauty of the town, for a stately road and promenade have been constructed along the beach. Along the lake side of the southern portion, unfortunately, a main railroad line has been allowed to take possession, so that this, the chief part of the town, has lost what might have been its greatest attraction.

The business quarter of Chicago is like a colossal Manchester. Prevented from expanding in one direction by the lake, hampered in its expansion in another by the river, it has been compelled to grow upward. The result has been some really fine buildings, imposing from their mere magnitude, some of the most monstrous and offensive constructions that the wit of man has yet devised. Still, they are all admirably suited for their purpose, which is to concentrate within the smallest possible area the largest possible amount of humanity. There must, I suppose, be more people gaining their living in the central square half-mile of Chicago, than in any other area of equal size on the face of the earth. The thing is not a good thing to have done, but it has been done well, and nowhere, I am assured, and I believe it, can business be more readily and more conveniently transacted than on this seething, swarming plot.

Leaving the business quarter for the better residential parts of the town, we can pass for mile after mile along stately streets all as straight as ancient Roman roads, having on either side fine houses,

some mansions, some villas, for the most part detached, each standing in its own plot of ground, generally of greensward—there seem to be no gardens in Chicago, and few boundary walls or railings—some artistic, some inartistic, some pretentious, some even grotesque, but all comfortable and well-looking, betokening a high standard of wealth and a growing standard of appreciation of the beautiful. The suburbs of no English town, with their walled gardens and concealed houses, present anything of the special attraction of these long vistas of handsome buildings, individual but not separated, each distinct yet open to all the world.

Turning away out of these fine streets, we soon get to unfinished districts of the city, where the roads are bad, and the houses have a temporary look. Even here and there on the main streets one may see an occasional wood-frame house, relic of the days before the fire. And, no doubt, Chicago has her squalid quarters, like every other great assemblage of mankind. These, however, the visitor is not taken to see, and I am only dealing with the hasty impressions of a passing visit.

Of the life that is led within these comfortable abodes, nobody without long experience can well speak except from hearsay. One is left with the impression that if the people of Chicago treat one another with the boundless hospitality, the genial friendliness they extend to the wandering stranger, life there must have its advantages. To the outsider, however, it would seem that the absence of a leisure class, and therefore of any ambition to belong to it, must tend to deprive life of many of what we, on this side, esteem its most pleasant features. In Western America people do not seem to have any holiday time. They have few or no outdoor amusements, little sport, no hunting, no yachting, no games. Public opinion seems to expect everybody to be busy making money, and disapproves of the pursuits of those who are otherwise occupied. So nobody has any ambition, except to make money, and, when he has made it, to go on making more. Other objects of ambition are wanting. Politics offer no career. With us a seat in the House of Commons is an object to be attained. With them, a seat in the House of Representatives is a means for attaining an object. Perhaps the latter is the more

sensible view, but life is not the happier for the destruction even of imaginary ideals. Country life, as we know it, is unknown. Charming country houses there are, delightful houses for a short visit, but the owners live in them as if they had taken them for a month—they have no local interests or ties.

And yet, though wealth is the sole object of all men's desire, it does not appear that Chicago Society is wholly dominated by wealth. A man who is a poor clerk in a dry-goods store to-day may be a millionaire to-morrow, and the existing millionaires seem to realize this fact, and, perhaps, to pride themselves on realizing it. There are, under such circumstances, special reasons for acting on the wise precept of the Greek tragedian, to treat your friend as if some day he might be your enemy, and your enemy as if he might some day become your friend. Anyhow, there appears to be a good deal of real republican feeling in Chicago society, and a tendency to take men for what they are worth in other currency than that of the United States mint.

There is strong evidence of a genuine desire to grow out of the vulgarity—if I may be pardoned so very uncivil an expression—which attached in the past to the reputation of Chicago and to the methods of money-making there. Such a desire is apt to bring about its own fruition; it has, to a large extent, done so, and the tendency will grow. The desire of many of the best men of Chicago is that their city, the city in which they take so just, so honest, a pride, should be renowned for its university, its libraries, its museums, its galleries, not for its stock-yards and grain-elevators, and in the not distant future they and their sons are likely to see their hopes realized.

Having so much that is worth showing to show, is it any matter for surprise that the people of Chicago seized on the suggestion that the quarter-centenary of Columbus's discovery of America should be celebrated by an international exhibition, and set to work with characteristic energy to secure for their city this magnificent advertisement? Many of them, indeed, thought that they were not quite ready, that they wanted a few more years to finish their streets, to complete their parks, to build yet a larger number of big buildings. It was, however, evident that the

opportunity would not recur. The splendor of the Paris Exhibition of 1889 had inflamed the minds of the Americans who saw it, and had roused the feeling of rivalry so natural to the American breast. France had had the best and biggest exhibition. America must have a better, and, above all, a bigger one. That was settled by common consent. The question was, where? New York was naturally first suggested. To us on this side it seems as natural that any national undertaking should in America find its place at New York as that in England it should come to London, or that in France Paris should give it room. This is not so in the United States. Those States, though united, are yet separate and individual. They have their antagonisms as the various countries of Europe have. Between the East and West there seems to be growing up a rivalry as strong in its way, though of a very different character, as the old feeling between North and South. The strong young communities of the West will have themselves acknowledged, are no longer content to be regarded as quasi-colonial appendages of the empire of the East.

When the great national function was decided upon, the West put in her claim, and her representative was of necessity the admitted metropolis of the West, Chicago. So the struggle narrowed down to a fight between the two great cities. The western city enforced her arguments by promptly undertaking to find ten millions of dollars—say £2,000,000 sterling—and this powerful argument settled the matter. New York was at first incredulous, then exasperated. She does not love her pushing, energetic sister. Probably the feeling is mainly one of sentiment. The two cities must be too far apart for any injurious trade competition. There is work for both of them. The prosperity of Chicago has in no sense grown at the expense of New York. On the contrary, Chicago has, to a large extent, been built up with New York capital, and the interests of the two cities are in many respects identical. But the pride of the older city was touched. When an individual has enjoyed admitted pre-eminence in any line of life, he does not like the notion of a younger man coming in to share his honors with him, and the same rule holds good of communities. New York is *de*

facto the capital of the United States. The idea of a second capital arising for the western division of her empire cannot be pleasing to her. Mr. Warner—to refer once more to his interesting volume—shows this in his own person. He is taken quite aback by the fact of anybody seriously, and without any sense of incongruity, comparing Chicago and New York, but after a little thought he admits that after all it is not so unreasonable for an outsider unconsciously to place the two cities in the same class, and to apply the same standard to both.

This is somewhat of a concession, and when it is made by Mr. Warner's neighbors as well as by Mr. Warner, a good deal of the feeling of rivalry will be dead. That it still exists is certain, even that it has been temporarily embittered by the success of Chicago in getting chosen as the site of the "World's Fair."

The Chicagoans, having obtained the concession, set about to make the most of it. They promptly subscribed the necessary guarantee fund, which—according to the terms of the Act of Congress—justified the President in appointing a commission, and in inviting the co-operation of foreign nations. It might be thought that it would have been more consonant with the general tendency of American politics to make the exhibition a national one only. It seems hardly reasonable that a country should one day establish a tariff intended to keep out foreign trade, and the next organize an exhibition of which one main purpose would be to encourage foreign traders. Fortunately, however, human affairs are seldom governed by principles of pure logic, and the same Congress which passed the McKinley Tariff Act, also provided a most admirable opportunity for those who are injured by the tariff, at home and abroad, to demonstrate to the American people, if they can, how serious are the losses it will inflict upon them.

For whatever reasons, then, it was determined that the display should be international. Nothing less would serve the ambition of its promoters, and indeed nothing less would quite have answered their purpose. Formal invitations were consequently addressed by the President to all the countries of the world. Responses at first came in slowly. Lord Salisbury, on behalf of Great Britain, at once promised a Royal Commission.

France accepted cordially. Some other countries undertook to co-operate, but no very definite steps were taken anywhere to carry these resolutions into effect. Under these circumstances, the National Commission appointed a sub-commission to visit Europe, and ascertain definitely the intentions of the various Governments. These gentlemen arrived in England last summer, and the very cordial welcome they received no doubt greatly facilitated their work on the Continent, since the intimate relations between England and America of necessity led the other European nations to wait and see, before deciding on their own course, what the action of England would be.

The ultimate result of their mission was to hasten the appointment of the Royal Commission* in this country; to cause the appointment of commissioners in Germany and Denmark, and to obtain promises of support from certain other countries.

The practical outcome of the commissioners' journey was to make it certain that the exhibition would have a genuinely international character, and this again reacted upon the feelings with which the project was regarded in America, and lent it an added importance. While it is the chief object of the country holding an international exhibition to demonstrate its superiority over other countries - this was carried out with much skill and conspicuous success in 1889 at Paris—it is also necessary that, for the sake of comparison, the products of other countries should be shown. An opportunity is thus afforded to her trade rivals, and an opportunity which, as a rule, they find it essential not to neglect.

It is true that for the European countries there are special difficulties on the present occasion. Chicago is a long way off, four thousand miles away. It is even a long way from the sea-coast where all the goods have to be landed. Nor does

it rank quite with Paris as a pleasure resort. We are all of us too glad of an excuse to go to Paris, and we crowd to an exhibition there from every corner of the earth. The delights of Chicago are not yet sufficiently familiar to attract us thither.

On the other hand, Chicago is in the midst of a perfectly new country, a country full of rich men, and fuller still of well-to-do men, where people are just awakening to the delights of luxury and the joys of luxurious living, where art is beginning to be fashionable, and the market for artistic wares great and growing. Now and in the years to come all that ministers to the delight of the eye and the pride of life will find a ready sale in Western America, as new towns are built, all of new houses requiring new furniture, new decorations, new fittings of every degree of comfort and luxury.

As the Philadelphia Exhibition in 1876 set the fashion of house-building and furniture throughout the Northern States, so it is pretty certain will the Chicago one of 1893 set the fashion in the West.

The great difficulty, however, in the way of British exhibitors is neither the distance of Chicago nor the consequent cost of exhibiting there. It is, of course, the McKinley Tariff. Why, I have been asked over and over again, why should I show my goods to a people who are acting in so unfriendly a manner, who are doing the best they can to prevent my selling those goods? The answer to this cannot be given offhand, and it must depend on the character of the particular manufacturer. As a general consideration, it is to be remembered that an exhibition is visited by people from all parts of the world, and that the things shown there are not shown only to the natives of the country where the exhibition is held. For instance, the Chicago people expect to have large numbers of visitors from South America, and they regard the exhibition as offering a most favorable opportunity of getting our South American trade away from us. If they are correct, it is essential that our manufacturers who make for the South American market should be prepared to keep themselves in the minds of those of their customers from that continent who visit the exhibition.

As to the unfriendliness of the tariff, surely that is a very feeble and somewhat

* The Council of the Society of Arts was appointed to serve as the Royal Commission, with a grant of £25,000 toward the expenses, it being left to the Commission to raise any further amount required by charges to the exhibitors. The following grants were made on previous occasions: Paris, 1867, £126,000; Vienna, 1873, £29,000; Philadelphia, 1876, £40,000; Paris, 1878, £87,000. For Paris, 1889, no grant was made; a sum of £30,000 was raised by charges to the exhibitors.

hypocritical sort of argument. We are a free-trade country, not because of our great love for all other countries, but because the majority of us consider it to be a good thing for ourselves. America is protectionist for no better and no worse a cause. Can anybody believe that if a majority of British voters were of the same mind as the majority of American voters apparently are on this point, one or other of our political parties would not at once become protectionist, and would give us a McKinley Tariff of our own as soon as the necessary parliamentary fighting had been done?

It appears to me that if the American people have come to the conclusion that the best way to develop their own industries is to put a high protective duty on the products of others, they are perfectly justified in imposing such a duty. They are merely acting according to their own best lights. It is our business to show them, if we can, that they are wrong, that they are encouraging the manufacture of inferior goods and increasing their price, that they are not keeping out our wares, but only making the American consumer pay more for them. To grumble at and abuse the Americans is mere foolishness. To refuse to take every chance of improving our trade is to perform the childish operation of cutting off our nose to spite our face.

And it is by no means certain that the new tariff will have the effect expected of it. As was pointed out by Mr. Carnegie in a previous number of this Review,* it remains to be seen whether it will have very much effect on British trade with the United States. Large classes of our goods are not touched by it; the duties on some others are reduced. Very many can stand the increased rate, which is paid by the American consumer in higher prices, while for others, again, no duty is protective, since they cannot be made in America at all. It is said that the chief result of the very heavy duties on tin-plate has been to lower the profit of American fruit-growers. A can of preserved fruit has to be sold for a certain price. The can costs more, so its contents must cost less.

There has, of course, been a falling off in British export trade during the past twelve or eighteen months. Careful ex-

amination of the figures, however, shows that the falling off in the trade with the United States is only a little greater in proportion than the diminution in other quarters. Nor would it be fair to put even all of this down to the account of the tariff. Some of it is certainly to be attributed to other causes than increased customs dues. The mere overstocking of the market from heavy purchases under the old rates would alone have caused a diminished export if the tariff had been suddenly abolished the day after it came into force.

Changes of fashion also will account for at all events some of the diminution. The Bradford manufacturers are very sore about the tariff, and probably they have suffered from it as much as anybody. But they are certainly also suffering from one of those capricious changes of fashion to which their trade is so specially liable. To take one example: it is stated on good authority that one principal article of export to the United States was the sort of plush known as imitation sealskin. This has gone out of fashion, and the manufacturers of this material, both here and in America, will be out of work till they find some other class of goods for which there is a rapid and extensive demand. That the existing depression in their trade is not caused by the tariff alone is shown by the failure of one of our largest manufacturers to set up and work successfully a branch factory in America, and the decision arrived at by another firm of like standing that it would not pay—even with the aid of the tariff—to attempt to manufacture in America the goods which they declare are excluded solely by high customs dues.

Again, the tariff may or may not be permanent. It may quite possibly be succeeded by a scale of duties lower than the one which it replaced, and on which it was, after all, only a comparatively small advance. Customs duties have ruled high in America for a long time past. At the last congressional elections the country declared against it, and though public feeling in the States seems since to have veered round toward the protectionist quarter, it is by no means certain that it will keep there. At any rate, the majority in favor of protection is, if it really exists at all, a very small one, and at any moment the system may be changed. Whether this will be to our advantage remains to be

* *Nineteenth Century*, June, 1891.

seen ; those who are entitled to express their opinion on the question do not hesitate to state their belief that the day when America becomes a free-trade country will be a disastrous one for British commerce.

Finally, if the tariff is so potent an instrument for keeping out British goods, it is the interest of British manufacturers to fight it in every way, to destroy it if possible, to render it nugatory if it cannot be destroyed. The United States is far and away our largest customer. Are we to lie down supine before the barrier she has erected to protect her own industries, wringing our hands in distress because it is difficult to pass ? This was not the way in which our commerce was created, nor in such fashion will it be maintained. Rather should we use every legitimate means to get over it, or through it, or round it. We must show the Americans that, in spite of all the artificial obstacles they can place in the road, we can still make our way into their markets. We must prove that in certain classes of manufacture we can still beat them. We must seize every opportunity of showing them—where we can—how much better our wares are than theirs, and so long as we can do this, we need not fear hostile tariffs. When we fail to do so, we may admit ourselves beaten, get rid of seven eighths of our population, and set the rest to grow cheese and butter for their own consumption.

There is one thing certain, that we shall have—as in all trade matters—a much stronger competition to face from other nations than at any previous exhibition. Our manufacturers have profited largely in the past by these great international shows, they have gained advantage for themselves and credit for their country. A general tendency is now showing itself in matters commercial to rest content with things as they are, and this is evident in case of exhibitions as elsewhere. Foreign nations are profiting by the lessons we have taught them, and are bettering our example. At Paris in 1889, Belgium, for instance, had an exhibit of the highest class, and many of the firms who took part in it are believed to have gained thereby considerable increase in their business. Germany, of course, held aloof in 1889, but her manufacturers are all the keener to take advantage of the opportunity of 1893. They, too, have an eye on the

South American trade, and believe they see their way to picking up customers at Chicago. The grant made by the German Government is just double that given by ours, and the German exhibitors are by so much in a more favorable position than ours. Instead of having to contribute to the cost of general administration, they will no doubt be liberally assisted both directly and indirectly. The funds are at the disposal of a most capable and energetic administrator, Herr Adolphe Wer-muth, who gained deserved credit by the success he made of the German Section at the last Melbourne Exhibition. The action likely to be taken by France seems as yet uncertain. If reports are to be trusted, the prospect of an important contribution from thence seem less favorable now than they did a while ago ; but with the amount proposed, £120,000, the French Section ought to be magnificent. Mexico is believed to have made the largest subvention of any, £150,000 ; Brazil next, with £120,000 ; then Japan, which promises £100,000. According to the latest statements, foreign Governments have already promised an aggregate sum of over three quarters of a million sterling for their commissions at Chicago, and information cannot be available yet from very many of the countries likely to take a part.

And the competition (if in this connection it is right to use the word) will come, not only from other countries, but from our own colonies. The colonies have already voted sums equal in the aggregate to some £100,000, and during the next three or four months we shall certainly hear of these amounts being largely increased. Canada and New South Wales are arranging to send large contributions, so is the Cape. Victoria has lately announced her intention of taking part in the exhibition, and in considering with the other Australian colonies the question of a joint Australian exhibit. Tasmania proposes to fill a considerable space. The West Indian colonies have had the matter in hand for a long while, and many of the small colonies also intend to be represented. The Indian Government at present is, most unfortunately, disinclined to participate, and no doubt the trade in Indian tea and textiles will suffer in consequence. India has, however, been called upon for very many contributions to previous exhibitions, and though Indian commerce

has profited, the price paid was unduly high. The energetic people of Ceylon are taking a different view, and are making preparations already to push their tea strenuously into American markets.

But severe as the friendly rivalry will be, there seems no reason to fear that the country will fail to keep the leading position it has always held since the first Exhibition was held in Hyde Park in 1851. It is to be remembered that we have a character to maintain. The British Section has always been the best at foreign exhibitions. It has, I think, always filled the largest space, taken the largest proportion of jury awards, and generally proved the most important. Even in 1889, without a Government grant, or the hardly less important aid of Government influence, we held our own. If it were found that England was ready to take a lower place at a "World's Fair," our enemies would have some reason to say that our old spirit of commercial enterprise was less vigorous than of yore.

If it is to the advantage of other countries to spend lavishly for the purpose—to a large extent—of taking our trade away from us, it is worth our while to bestir ourselves for the purpose of keeping it.

That, under protest, and after a due amount of grumbling, we shall do so, as we did at Paris in 1889, I thoroughly believe, for I think that there is every reason to expect that alike in art and in industry the British Section at Chicago will be worthy of comparison with the British Section at former exhibitions, and will have similar important results on the prosperity both of our art and of our manufacturing industries.

Our manufacturers generally seem quite alive to the importance of the occasion, and preparations are now being made in various parts of the country for a display of certain classes of British goods which promises to eclipse even the fine collections shown before on similar occasions. Should it prove otherwise, it would be disastrous, not only because such a falling off would justly be held a symptom of the decadence of our commercial powers, but because it would imply some lack of friendly feeling between ourselves and our great kindred beyond the seas were England to take any but the foremost place on so special an occasion as the great national festival which America is making ready to hold at Chicago in 1893.—*Nineteenth Century*.

WOMAN'S PLACE IN MODERN LIFE.

BY MADAME JULIETTE ADAM.

SURELY at no other period have women had the same incentives as at present to reflect upon their position, their rights, and their duties, as wives and mothers in our modern world. The various formulas, customs, institutions, prejudices which for centuries have hemmed them in are by degrees being either more liberally interpreted or being done away with altogether. The more and more expansive character imparted to modern life by the effects of material progress, the greater facilities of intercommunication, and the ever-increasing degree of social independence gained by man has, among other causes, affected woman's position in this much, that she is now almost entirely freed from the bonds which once held her captive, a slave to the conjugal hearth. The era of woman's emancipation has commenced.

Yet it cannot be denied that the march

of woman toward a larger and more legitimate social development has been far slower and more embarrassed than man's during an equal lapse of time. Man to a great extent has triumphed over the long oppression of caste, and, in his turn, has ceased to oppress woman so heavily as before; but he has never taken any steps to associate her with himself in his demands for the recognition of his rights. And woman, in the timidity and uncertainty born of ages of subjection, does not dare to press her just claims for herself. The door of her cage is open, but she is still held in awe by the bars.

The health, happiness, and beneficent action of any and every organism are in direct ratio to its state of conformity with the natural laws of its being, and consequently, with the general law of all. Now the modern woman approaches by no

means so closely to this condition of natural conformity as does the modern man, whether it be that, as in certain countries, like the United States, she tends to become man's social and intellectual superior, or whether, as in France for example, she acts as a drag upon the wheel of progress. In France woman unconsciously revenges herself for not having been suffered to participate in the benefits of the Revolution by exerting a retrograde, ultra-Conservative influence, which at the present day works as a perturbing element in French society.

It is a fact now generally recognized that all things on earth follow a natural progression on the lines of utilization of force, co-ordination of faculties, and development of productiveness. The very history of our globe, whose final destination was to become the habitat of man, gives evidence of the prolonged phases of perturbation through which things must pass on the way to their appointed goal. But, on the other hand, the more a sphere, a society, a caste, a sex begins to approximate to its true reason of being, its normal motives of activity, the more of power, of virtue, of stability will it acquire. If, then, the natural, moral, and social conditions regulating the existence of individuals were more thoroughly understood, and more strictly observed, it would soon be perceived that all oppressors are themselves oppressed through the effects of that very despotism they exert, and that abuses always recoil upon their authors. In all cases, under all circumstances, the final interests of the minority will be found to correspond with those of the greatest number. The effort made by social groups and by separate individuals to possess themselves of what they feel to be their rights becomes excessive in exact proportion to the resistance of those who deny the rights in question. Injustice breeds injustice. Thus woman, whose mission in society and in the family circle is one of beneficence, becomes a maleficent influence in direct consequence of the abasement to which she has hitherto been subjected.

In ancient life we see Aspasia and the other Greek courtesans seizing upon the social influence which was denied to Grecian wives and mothers; and yet a Greek wife, by eloping with the seducer Paris, had already shown that the triple portals

of the gynæceum cannot confine a woman against her will. And, strangely enough, all Greece was drawn into a war which imperilled its very existence through the action of her who had rebelled, however wantonly, against the oppressive restrictions then imposed upon members of her sex.

Rome was contented, austere, temperate in her ambition and ignorant of defeat just so long as the matron's rights were respected and her position secure. But from the day when the Republic, with all its virtues, disappears, under the Cæsars woman is only regarded as a plaything. Corruption stalks abroad, and the empire totters to its fall.

Under the feudal system woman is pent up in the manor house; chivalry is born, and the feudal knights scour the country in search of ideal love. The wife is regarded as a chattel, while that ideal entity, the ladye-love, is placed on a pedestal.

Warlike peoples are prosperous so long as their women are brave, fond of war, and lead the life of the camp. But the nations which immure their women in harems, lose in those very harems the last vestiges of manly virtue; and the greatest Oriental empires have sunk into decrepitude through the effects of intrigues set on foot by female slaves. When woman is not permitted to exercise her organizing powers, she becomes a disorganizing influence.

If, however, woman attempts to transcend her legitimate sphere of action by breaking away from her natural limitations, the result can only be to subject her to new conditions of social inferiority. In any society or among any people where woman is despised by man, he himself becomes despicable through his sharing in the degradation and corruption to which he has condemned her. We have seen how the slave of the harem in her turn enslaves the enslaver. In more advanced societies, such as that of France during the eighteenth century, if man relegates woman to the sphere of gallantry and frivolity alone, the nation itself becomes merely gallant and frivolous. But should man, on the other hand, concede to woman an unduly wide influence in society, should he place himself in such a position of inferiority as to be no longer anything but an instrument to her luxurious tastes, she will drift away from him in disdain,

will form a privileged class, an aristocracy, and thus wealth comes to assume a factitious importance, imperilling the moral conditions of society and relaxing the former closeness of the family tie.

Danger in these respects must still exist, even now that woman is no longer entirely a minor, whenever man declines to recognize her independence, refuses to treat her as a partner and companion and to grant her, at least in the home, rights not identical with his, which she could exercise to no good effect, but rights equivalent in all the fields of her activity, rights proportioned to her powers, and bringing with them their meed of legitimate responsibility and control.

In certain countries and at certain periods man has reduced woman to the level of a beast of burden. Under these conditions she ages rapidly, and man, consequently, is impelled toward polygamy. The barbarous treatment she encounters has the effect of degrading man to usages of primitive barbarism. If, again, man experiences nothing but mere physical desire for woman, if he fails to recognize or awaken her moral personality, she, without scruple, will dishonor him in return. She only sees in the husband a lover to whom naught but physical compliance is due; and should he cease to love, the tie is broken, the bond annulled. Happy if the husband be not regarded as a tyrant, to be deceived whenever occasion offers!

Woman ever is woman's avenger. The measure of her influence is constant; but if she be not allowed to wield it for good, she will devote it to evil. Observe how, even in matters of detail, this truth is made manifest by the inexorable logic of facts. The artisan, for example, who shirks the responsibilities of the marriage bond, turns to the prostitute, who degrades him and reduces him to want; while in the superior classes of society, the man who deceives his wife with a wanton is deceived by the latter, and thus is himself made to play the part which he has imposed upon another. Suppose again, the case of a man of superior intelligence who should seek the society, not of the superior woman best qualified to be his natural mate, but of some woman of lower type; he, too, will become enslaved, and be dragged downward sooner or later.

If the real value and social utility of woman be not duly recognized and al-

lowed, she will inevitably seek to obtain dominion through her wiles, and may come to exercise a truly diabolical influence. Throughout the ages, woman has been formed and moulded by man as a species of instrument conducive to his pleasures and comforts. She has been sedulously adapted to fit in with masculine prejudices, desires and conventions. What wonder then if the instrument should often have wounded the hand that had so misused it? Thousands of legends are extant regarding the perversity of woman; but by whom was she rendered perverse in the first place? Misunderstood and oppressed, she naturally became imbued with all those faults and failings that grow out of misapprehension and oppression.

Whenever woman has been enabled to act as the companion, the associate, and the equal of man (his equal, I repeat, not from the point of view of identity, but from that of equivalence) she has actually shown herself superior to the majority of men and more benevolently disposed, for benevolence is the primary trait of woman's real nature. Among the peasantry, when the wife receives such treatment, as in France, where the countryman calls his companion *not' dame*, and concedes to her the whole interior management of the household and consults with her, moreover, concerning every circumstance of his exterior life, her children, even if they be sons, never being set above her head, peace and plenty come to enrich the humble homestead. Among the *bourgeois* class, when a perfect community of thought exists between the husband and his wife, when the husband does not go to his *cercle*, leaving *madame* to "religion" or to gossip, when they both plan and act together, when the children are not brought up separately—the sons under the father's control and the daughters under that of the mother—when there are not two opinions as to the proper direction of the family interests, then the wife becomes a most potent factor of good for husband and children. In the sphere of retail trade woman displays the most valuable aptitudes, and, as we say in France, it is she who "makes the house." In commerce, if women be allowed to play an active personal rôle, they—as many examples go to show—are perhaps on the whole more likely to be eminently successful than men. And, finally, rising to the topmost social

spheres, is it not singular to observe how many out of the comparatively small number of female sovereigns have been great? Not that I would be understood as deeming the superiority of women over men a desideratum. On the contrary, I consider there is as much danger involved in the superiority of women over men as in that of men over women.

In the arts, in letters, in trade, in commerce, in politics, Frenchwomen, after severe and protracted struggles, have finally succeeded in securing the rank due to their talents and their faculties. Individually, moreover, they have contrived to overcome the somewhat unsavory reputation attaching to any exceptional woman. But they are as yet well-nigh powerless to protect the exceptional woman at her *début* against the irony of her compatriots. The male sex in France is "galant" enough to feel indulgently toward a woman who has fallen. It is not so indulgently inclined toward a woman who is struggling to rise. The explanation perhaps is that the fallen woman becomes an easy prey, while the others escape through their superior elevation. I speak with regard to the present and the future rather than the past, for too many of the women who in former generations rendered themselves famous, in letters more especially, instead of claiming for themselves and for women in general certain equivalent though not identical rights, appeared desirous rather of adapting themselves to the free and easy customs of masculine life. This is, perhaps, one reason why women engaged in trade, commerce, agriculture, or finance find it easier to command the respect of French society than those who cultivate literature or the arts.

The campaign Englishwomen are now engaged in for the conquest of their civil and political rights is being followed with the profoundest interest in France. Frenchwomen are not as yet prepared to engage in such a struggle. But the example of the course pursued in this respect by the women of England will be of great value to us, when the time comes for us to try and carve our way through the inextricable thickets of Gallic prejudice.

In my travels in most parts of the world I have observed that woman's moral plane rises as that of man's declines. Europeans at the present day are given over almost entirely to the pursuit of pleasure, to the

gratification of the appetites, to the indulgence of unhealthy and degrading tastes, such as that for tobacco and drink. Plunging fiercely into the social *mêlée* in order to procure the means of luxury for woman, whom he refuses to treat as an equal and who consequently drives him like a slave, whom he hesitates to make his confidant, and who makes use of him as a beast of burden, he dwindles and weakens, while woman's ascendancy increases. He fears to make of her the partner of his existence, and she becomes his severest judge, without the least indulgence for weaknesses which she either condemns or else takes advantage of, according to her degree of morality.

At the present day more than ever before, it has become a matter of necessity that the activity, the faculties, the influence, the powers of woman should be brought to bear upon the proper adjustment of the social equilibrium. The laws regulating the world, with its human life and societies, plainly indicate that any force must be allowed its natural expansion, or else it will work the gravest disturbance. Woman nowadays is a force, and as a force must find her suitable employ. Her full and due share must be allowed her in social action, and social rights, duties, and benefits. She can no more be indefinitely withheld from her public duties than she is exempted from taxation. The longer the delay in according woman her rights, the more disastrously will she make felt the influence of her defects. The exercise of certain rights and duties has been known to have within the space of a few years a moralizing effect upon whole classes and castes. Excluded, as though they were pariahs, from all participation in public affairs, many women have naturally come to regard themselves as enemies of the existing order of things. Allow them their just share of influence, and civic virtues will be added to their personal ones, as has always been the case during periods of great national distress. In woman, admitted at last to the exercise of her full social duties and the enjoyment of her full social rights, the coming century may undoubtedly, if it wishes, find the material for a relative social regeneration. The time has already come when woman, in every class of society, may begin to take possession of her proper place and rank, and work for the

achievement of her definitive redemption through the affirmation of her beneficent influence. The moment is more propitious than has ever before been the case.

Man, solely with a view to his own aggrandizement, has exalted the power—a purely masculine one—of the State in a measure injurious to that of the family; he has set altogether too high a value on mere instruction, disregarding almost totally the early home-training which in all classes of society must serve, so to speak, as an alluvium for the soil of the mind. In none of the modern conceptions of public life has woman been allowed a share. Yet had this been done there is every reason to believe that, through the effect of her peculiar gifts and virtues, many errors might have been avoided; measures of too harsh a nature might have been softened under her feminine touch, over-hasty and sweeping resolutions might have been held in check owing to her spirit of conservatism, while some practical steps in aid of those who suffer would have surely been taken at the instigation of her sensitive and tender spirit. One of woman's chief duties at the present hour is to strive to defend her male children against the excess of mere education, apart from the sphere of home influence. The prevailing masculine tendency is to transform the youthful brain into a mere thinking-machine, which takes no account of the claims of sentiment or the higher attractions of the ideal, under the pretext that the ideal is not a thing reducible to logic. How can young men, educated according to these modern tenets, be expected to regard otherwise than with disdain the fund of moral notions which have been accumulated by the wisdom and experience of the ages but appear to them as nothing more than a mass of sophistries? They will only believe what their own knowledge tells them, and will not *swallow*, as they express it, anything else. The fact; the "document;" examples, tangible examples, drawn from the observation of animal nature: they care for nothing else, and prefer, they say, to stoop earthward than to dream with their eyes lost in the clouds. The manifestations of mere force interest them more than does the impalpable. They are assuredly not "psychical;" they are, indeed, not even human, for has not humanity always drawn the better part of its subsistence from truths which escape analysis

and mathematical demonstration? "We are scientific," they declare, and in the superior elevation of their "scientific" spirit, it may be readily imagined how they look down upon the "follies" which occupy their mothers' and sisters' minds. The father, open-mouthed in admiration at the knowledge of his sons, knowledge all the more obvious for being so material, is no longer interested in the "childish" bringing-up of his daughters, while the mother deems herself incompetent to follow the scientific instruction of her sons. And so another cause (besides their fondness for smoking) arises to draw our young men away from the society of worthy women into that of the unworthy.

Now the mother, who, if she be a woman possessing any degree of intelligence, will have done all that in her lies to keep in intellectual touch with her husband, should not hesitate to keep pace, if possible—inducing also her daughters to follow her example—with the higher degree of instruction imparted to her son. Women assuredly—this has been proved—are as capable as men of entering into the higher circles of knowledge. Mothers and sisters have bowed down before the cigarette, and now they should similarly give way to the spirit of science. They must add to the sum of their intellectual power, if only for the purpose of meeting brothers and sons on a more equal footing and thus detaining them more surely within the household circle.

At present so wide a gap exists between the entire form and nature of man's ideas and thoughts and those of woman, that men think themselves justified in deriving none of their conceptions from woman. Against this tendency woman must strive by every means in her power. "I never speak to my mother about my plans and ambitions, for I am sure she wouldn't understand them." So say many young men, with the full approval of their fathers. Similarly, many men hold that it would be wrong for them ever to speak to their wives concerning their business, but that it becomes them better as good husbands to leave the wife entirely to her little household affairs and her round of social frivolities. Now, it is for women, by their own endeavors, to modify men's judgment in this respect; and, in general, to gain influence over them by exciting their better qualities of heart and mind.

No new decree or fresh law is necessary to effect this object ; it will suffice for women to seek all occasions of offering sensible advice and rendering useful services, and to abandon their old ideas, even though in some points these may be preferable, in favor of the newer ideas of the age. Thus a broader, higher family life may be evolved, in which woman's influence shall be as great as or greater than ever before.

To unify, as it were, the minds of her

sons and daughters rather than allow them to remain in different spheres ; to inspire her husband with the desire to make her a sharer in his conceptions and enterprises ; to seize every occasion of participating, within the measure of her capacities, in masculine ambition and effort—such should be the first steps henceforth taken by woman toward a future where her position and her influence will be duly recognized and more accurately marked.—*Fortnightly Review*.

WILLIAM.

"Du bist noch nicht der Mann den Teufel fest zu halten!"—FAUST.

THE Emperor's now notorious speech at the annual dinner of the Brandenburg Diet, on the 24th of February last, and the notification of the press prosecutions that are to follow it, have intensified the curiosity of public opinion in Europe, which for the last three years he has already largely monopolized. And yet neither speech nor threat of prosecution can lay claim to an originality which would justify so sudden an increase of interest. At most they combine with what has gone before to form a dramatic climax : they may fitly be styled—"le couronnement d'un étrange édifice psychologique." For previous speeches of the Emperor, rightly understood, harbored similar ill-considered ideas ; and prosecutions for *lèse-majesté* have for years past belonged to the order of the day in Germany.* It is the high standing of the persons who have this time spoken out (though if all were known, they are as nothing beside those who agree with them and remain silent), which lends exceptional importance to this latest ebullition, and seems to render an impartial glance at the events connected with it opportune. When thoroughgoing patriotic and monarchical papers, such as the *Cologne Gazette* and the *Münchener Allgemeine Zeitung* adopt the tone they have now taken up ; when such men as Professor Helmholtz, Professor Delbruck,†

and Dr. Pachnicke* speak out as they have done, and scores—yes, hundreds of others no longer shrink from speaking in unison with them, it is time to ask, "What does it all mean?" "Where are things drifting to in Berlin, and in Germany?" "Who is or who are responsible for the present state of affairs?" And finally, "What are *au fond* the personal characteristics of a ruler, who, on the morrow of Bismarck's dismissal, was heralded by nearly all as a man of exceptional ability, and by many as at least a man of a strong character, possibly with a touch of true genius?"

What it all means is easily suggested—namely, that the back of Germany's character and intellect is ominously up, and most ominously so where it is as yet unseen. Men are heartily sick of this everlasting flow of phrases, which becomes more copious and more mischievous, instead of "drying up," as had been fondly hoped. For, if there is a country where on practical matters windy phraseology is viewed with detestation and contempt, it is Germany. There is a German saying, "*Bange machen gilt nicht*," which translated means, "It is against the rules of

feeling which has been excited by the speech will not pass away. The speech itself may be forgotten, but the traditional sentiment that has been drowned by it is lost forever."

* Dr. Pachnicke, member of the Reichstag, at Magdeburg on the 7th of March :—"The Emperor cannot believe that his views alone possess decisive importance. That would be impossible, for judicial as well as for actual reasons. . . . The time for all-controlling genius is past."

* According to the *Münchener Allgemeine Zeitung*, 488 persons were punished for *lèse-majesté* in the year 1889 ; 554 in 1888 ; and 540 in 1887.

† Professor Delbruck, in the March number of *Preussische Jahrbücher* :—"The passionate

the game to frighten your adversary." Thus, when the modern Hotspur calls out—"Albrecht Achilles once said, I know of no more reputable spot on which to die than in the midst of my enemies,"* they simply smile and think of Harry of Monmouth; or, worse still, they whisper "*Es ist nicht so gefährlich*" (there is nothing to be afraid of); "men who are in the habit of dying in the midst of their enemies are never known to proclaim it beforehand."

It means farther, that the class of men of to-day, whose ancestors led Germany in her many struggles for priceless spiritual possessions in the past, and who form the cream of the intellectual culture of the country, are determined to oppose the threatened educational *Krebsgang* (crab movement) with might and main. The full meaning of this, if things were to come to extremes, only those can conjure up who know Germany fairly well. But things will not come to extremes, at least not at present; it needs no gift of prophecy to foretell as much as that. And this for two reasons: the Emperor has nothing like the necessary resources at his command to fight such a battle as that would portend; and secondly, neither is he made of the stuff of those men who have fought similar battles before. Thus things for the present will drift back to about where they were a month ago—that is to say, to that stage of apparently interesting but rudderless experiment, which has for some time bewildered all those who have no other means of judging the present than by endeavoring to fit it on as a logical outcome of the past.

What next and most powerfully impresses us is the immense responsibility incurred by the advisers—seemingly non-advisers—who have succeeded Bismarck in the counsels of the Emperor. It is significant that Herr von Bennigsen, one of the ablest men in Germany, is not among them. But Count von Caprivi bears a responsibility the load of which few will envy him. The ready gift of tongue and suave amiability of manner are his, and both qualities have, to our thinking, been unduly extolled—particularly the latter, which is part of the flesh and blood of all Prussian officers of high rank. But what

has met with scant notice is, the full significance of his being a soldier. He has bluntly said as much himself. He has said that he looks upon the duties of his position in the light of a soldier called upon to obey the order of his superior officer. No reproach can be pointed at a man who is simply incapable of having a will of his own, or an opinion contrary to that of his supreme war-lord. It would in his eyes be a breach of discipline. In this Count Caprivi is consistent. But is such a man, despite all his versatility, the right man to put the brake on the exuberant fancies of his Sovereign? We know that to do so is the necessary function of a responsible Minister, even in Germany, and we also know that Prussia's greatest monarch since Frederick the Great was grateful to him to whom he had confided the task of doing so. Now, either Count von Caprivi has endeavored to check the Emperor, in which case he has been unsuccessful and ought to retire, or he has not tried, and consequently has not proved his fitness for the tremendous responsibility of which, so long as he holds his present position, he cannot rid himself. Had he put his foot down when William II. started issuing manifestoes without Ministerial counter-signature, the Emperor would have dropped the habit. Of this we are convinced, for though the Emperor has dismissed a Bismarck we do not for a moment believe that he possesses one tenth of the tenacity of purpose of his grandfather.

And if Count von Caprivi is unequal to his task in this matter, one cannot expect more of lesser lights. Unfortunately, Herr von Bötticher, although a man of great working capacity, and of unblemished integrity and heart, is, through no fault of his own, not quite in such a position of independence *vis-à-vis* his Sovereign, as to follow out what his keen understanding might doubtless tell him would be the only right course to pursue. None of the other Ministerial luminaries of Prussia possess sufficient weight for any successful attempt to control the exuberant verbosity of the Sovereign.

Now with regard to the Emperor himself. His intentions are as well known as his feverish energy has been widely extolled. But what has hitherto attracted less attention is the question, whence his good intentions, his restless energy, draw

* Albrecht Achilles was a notable Elector of Brandenburg: "Public Speech of the Emperor," 1891.

their motive force? What kind of energy is this? What is it for? Goethe's words might well recur to us: "*Die Botschaft hör' ich wohl, allein mir fehlt der Glaube.*"* We want to know a little more about the soil on which these qualities have grown, so that if we cannot yet judge the seed by its mature product, we may at least be able to guess whether it is within the range of possibility that such soil should produce valuable fruit, and not only noisome weeds.

Long before he had come to the throne the character of Prince Wilhelm had excited exceptional curiosity, and in many hearts an amount of sympathy which was accounted for by pity for his well-known physical defect, and the efforts he made to overcome its consequences. Great things were prophesied for him in sundry places, though it is difficult to recall to-day any oracle of undoubted weight on the matter. On the other hand, he had not long left the University of Bonn, when it was whispered that he was a man of little heart, of inordinate vanity, and capable of great want of consideration for others; though all these qualities were dwarfed by an ever-present restlessness. He could not bear to be alone, or to have one hour not filled up with some plan or other. It was further hinted, that when his conduct in any way belied this estimate, it was simply a case of acting, in which all are agreed he is an adept. On one memorable occasion in Bonn he had no time given him to disguise himself and throw himself into an attitude. It was at an evening party, which Prince William honored by his presence. The late General Herwarth von Bittenfeld presided with his niece, who may not have been either young or beautiful. In going in to supper the old General, according to social custom, requested Prince William to give his arm to his niece. Instead of the conventional thanks and bow, Prince William hardly concealed his ill-humor. So old Herwarth von Bittenfeld—one of those true-gritted Prussian fighting men to whom his Sovereign is still a divinity, but nobody else besides of much account—burst out before the whole company, "*Gut, dann nicht!*" (All right, leave it alone!) and turning his back on Prince William, he led his niece in himself.

* "I hear the message, but lack faith in it."

In after years, among other things he was supposed to learn statecraft, and was placed for a time under a high administrative official, to familiarize himself with the technical routine of provincial administration. It is on record that this functionary, in answer to the query, what he thought of Prince William, replied: "I can give you that in two words: Prince William is a modern being" (*ein moderner Mensch*). To those who are familiar with the meaning of words from such a man, this is far from being a flattering estimate. It implies superficiality, the love of noisy notoriety—something akin to what Carlyle must have had in his mind's eye, when fifty years ago he wrote:

"Examine the man who lives in misery, because he does not shine above other men; who goes about producing himself, pruriently anxious about his gifts and claims; struggling to force everybody, as it were begging everybody for God's sake, to acknowledge him a great man, and set him over the heads of men! Such a creature is among the wretchedest sights seen under the sun. A great man? A poor prurient empty man; fitter for the ward of a hospital than for a throne among men. I advise you to keep out of his way. He cannot walk on quiet paths; unless you will look at him, wonder at him, write paragraphs about him, he cannot live. It is the emptiness of the man, not his greatness. Because there is nothing in himself, he hungers and thirsts that you should find something in him. In good truth I believe no great man, not so much as a genuine man who had health and real substance in him of whatever magnitude, was ever much tormented in this way."

In the first burst of enthusiasm from the credulous after the Emperor's accession to the throne, any indication of eccentricity of manner was put down to the effervescence of youth, and excited the less attention as his personality was still dwarfed by the shadow of his great Chancellor. Thus the dismissal of Prince Bismarck may be said to have first put him on his own legs in more senses than one. Every Bismarck-hater in poor envious Germany became in one night a man ready, under favorable conditions, to accept the young Emperor at his own valuation:—a task since proved to be beyond the digestive powers of all but the most robust. But for the moment there was at least "*eine That*"—action. Contemplative dreamers, and even persons who have hardly the capacity for dreaming, vouchsafed to them—that is, most of us—are impressed by action. The maker of

Germany had been almost violently turned adrift, and public opinion applauded the doing of it! It is a sickening memory this, of the hyenas at work; even the unrightly Yankee, fired by Imperial favor, daring to contribute his discordant howl at the fallen lion to Transatlantic magazines. There was nobody there to tell the intoxicated people:—"The dismissal of a Bismarck might have been a supreme act of self-denial in a strong deep-feeling nature, but in one of abnormal self-consciousness and vanity it could be no proof of strength of character at all; only another instance of those who lightly 'rush in where angels fear to tread.'"

Still it would be manifestly unfair to argue that there were not two sides even to this question. Without trespassing beyond the limits set to ourselves and enlarging unduly on political matter, it may be granted, that on the morrow of Bismarck's dismissal the young Emperor stood very high in the opinion of a large majority of lookers-on in all countries. To many there was something fascinating in the idea of the young, generously impulsive, and withal "strong" young monarch, pinning his colors to the mast of sympathy for down-trodden toiling mankind, and parting, at the cost of untold anguish, from the old, aristocratic, class-interest-hardened pilot. If ever a man had an opportunity it was he. Silence was the ally he wanted in that moment more than the Deity: in reality he acted according to the spirit of neither. Ah! had he but kept silence.

But as so often appears in the records of royal romantic Liberalism, the wildest hopes flourished for awhile. Some apparently judicious measures too were brought forward, and luck, if not acumen, seems to have favored him for awhile. His Imperial progresses through many lands had all the glamour of success—although it is whispered that in England, while uniforms were being changed and deputations received, and gala performances were in full swing, astute observers in high places had come to the conclusion that the busy young man was an over-rated article, and certainly not a well-balanced, still less a strong man. For all that, fortune seemed with him still; the dreaded Socialist party showed a rift in its ranks. For the Emperor is filled with a dread of the Socialists, such as all histrionic natures feel for

those who make on them the impression of being seriously in earnest—not in words only.

But this one positive result, the full consequences or insignificance of which time alone can show, was far from satisfying the Emperor. "Time" is not the agent he relies on, or the material he works with; he must hurry things on by throwing himself daily into the breach, under the influence of the spirit of the corporal who expects orders to be executed "at sight." He transplants the methods of the barracks to the green baize table of the Cabinet. Thus he gets too much in advance of "time," is soon out of touch with it, and will be forced to recede a bit or pay the penalty, as others have done before him.

In the mean while, the fear is spreading in Germany that the ultimate consequences of the Emperor's departure from Bismarck's foreign policy will be disastrous; for a thorough reversal it is, notwithstanding the emphatic declaration of Chancellor Caprivi on the morrow of Bismarck's dismissal, that the foreign "course" remained unchanged. But little public expression of this fear is heard because the press in Germany does not fulfil the same position as that of England in giving full voice to public opinion; and patriotism instinctively silences many who fear to discuss what they feel they are powerless to change. But there is a great deal of silent opinion in Germany; and it is this silent opinion which has been growing for the last two years, and has been quietly forming its own impartial judgment on the personality of the momentary figure-head of the German Empire. The thoughtful section of the community have never taken the Emperor at his own valuation, and their number has lately been increasing in geometrical progression, particularly in the south of Germany, precisely where the founders of German unity were most anxious to avoid future friction.* But the full extent of anxiety will possibly not be known until after Bismarck's death; for, sad as it is to have to say it, a portion of the German press still harbor so petty a resentment against the man who made their country great that they would rather

* According to all reliable reports there has never been such deep-rooted uneasiness and dissatisfaction throughout South Germany as at the present moment.

submit to anything than point even indirectly to his "irreplaceability." Still, it is this silent opinion which seems to us to outweigh in ultimate importance all that could possibly be expressed outside the Fatherland.

These unreported grumblers question the sincerity of the Emperor's benevolent interest in the working classes, which finds its daily expression in peripatetic sermons on the virtues of patriotic self-sacrifice, thrift, frugality, and contentment. They hear that his rough treatment and persistent snubbing of the wealthy aristocratic officers have been such that many of them have thrown up their commissions and quitted the army in disgust. People do not sympathize much with these officers, but many persons ask: "How does the Emperor's example fit in with this crusade against extravagance?" For, on the other hand, they hear of extravagant projects for building an Imperial palace in Frankfurt-on-the-Main (since abandoned), of expensive pleasure steamers kept up, of sailing yachts, of four million marks thrown out for a special train of carriages picked out in white and gold, and lastly of a brand-new cathedral to enshrine the tombs of the Hohenzollerns and to cost the trifle of ten million marks.

These unheard grumblers are further of opinion that the personal importance of the Emperor has been largely the creation of the daily press, to the slightest expression of which he attaches abnormal importance, and with regard to which he evinces a hyper-sensitiveness quite unique in a monarch, and all the more to be wondered at in a fellow-countryman, and presumably a student, of Goethe, who had such a contemptuous opinion of hyper-sensitive people. In publicly calling the exponents of the press "*press-bengeln*" (press youngsters) the Emperor seems to have been both ungrateful and unwise. The press has a knack of unmaking its idols. It may unmake him, as it has unmade others before now in other countries besides Germany, and leave him stranded, neglected, diminished, only with the powers for harm his position confers upon him, the power of undoing the work of genius.

For the Emperor's powers of direct action, as embodied in the Constitution of the Empire, are in reality far more limited than is thoroughly realized abroad.

The perennial journalistic chorus about the German Emperor being the corner-stone of European peace is largely "humbug." It can only be understood in the sense of a man earning praise because he refrains from using his power of setting a light to his neighbor's house, knowing full well that if he did so it would infallibly involve the burning of his own. These peace pæan-singers mix up the past and the present. Prince Bismarck enjoyed a prestige as guardian of the peace, which Germany to-day without him has largely forfeited. For the initiative, the decision in these matters lies to-day far more in the hands of France and Russia combined, or even in those of Austria, than in those of Germany. And we hold to this view even though we may be of opinion that Germany might still be able to face France and Russia for a time successfully. But this view brings no comfort; it rather indicates a possible temptation to vanity egged on by infatuation or the stronger will of others, and, thinking only of the success of the moment, only too likely to be drawn to risk the future. The sense that such are among the possibilities of the future, and that they might not be unwelcome to a party in England, is one reason why the Emperor's sudden friendship for everything English is viewed with mingled feelings in the Fatherland. Nor can even we ourselves lay much unction to our souls on the strength of the Emperor's latest admiration for England and English things. It is only a mushroom growth of yesterday, a capricious reaction against former undisguised dislike and villification. There is no character, no backbone in it.

Hence distrust and pessimism as to these matters. And let it be borne in mind that when the Emperor speaks of "My army," as he does so often, it is only the Prussian army that can be meant. The application of the term to the German army could only imply a slight to those other kings and princes who are but his allies, and whose armies are only in time of war by treaty placed under the supreme command of the German Emperor. Thus such expressions are calculated to reawaken that spirit of particularism which it has been the one aim of the creators of Germany to extinguish.

The instances in which the Emperor, with all his good intentions, has hurt

men's susceptibilities right and left, without the slightest excuse of a political object, are simply untold. Some months after Bismarck's dismissal, a historical play called "*Der neue Herr*," was performed at Berlin. The subject was the glorification of the young Elector of Brandenburg (known to history as the Great Elector), who, on ascending the throne of his fathers, dismissed his father's wicked Minister. Of course nobody could fail to notice the singularly ill-chosen historical parallel; but it did not end there. The Emperor visited the performance night after night, applauding vociferously, and even went out of his way to confer marks of distinction on author and actors. This episode was in general discreetly passed over by the press at the time; the fruit was not ripe, the cup not yet full. But for all that it wounded the feelings of many, who, whatever their party, had retained unsullied the sentiments of chivalrous gentlemen. A more recent attempt to propagate political ideas by means of a stage play, which also found demonstrative patronage from the Emperor, was choked at its birth by the apathy of the public, who sat on the half-empty benches in disdainful silence, amid the boisterous applause of the Emperor.

But all these incidents sink into insignificance beside the disastrous record of His Majesty's oratory. After posing for a while as a hater of class privilege and ostentatiously favoring men of burgher birth, on a memorable occasion he suddenly exclaimed, that the nobility were the "*Edelsten*;"—the noblest of his country; a sentiment that would only cause a smile in England, but digs deep trenches of resentment in partially feudal, but largely and aggressively democratic, Germany.

There are many who say that the Emperor's irrepressible habit of after-dinner speaking is an exotic, one that he has learned at public dinners in England, and with exceptional tendency to imitation, as distinct from origination, has transplanted to Germany, where it will never take root. For whereas in England the character of society and long political habit have enabled the public to take harmless after-dinner platitudes at their true value; in Germany they arouse resentment, possibly contempt, if they contain anything offensive or effusive—but never indulgent ap-

preciation. They are foreign to the temper of the nation: anywhere else they might go down, but not there. Also, what little taste Germans have for phrasemaking has been rendered very hard to please by the superb grit of Bismarck's rare but sledge-hammer utterances. What could the Emperor's phrases mean to them after the winged shafts of the man who built up one great historical empire and humbled two others?

The Emperor's intellectual stock in trade is said to consist mainly of the gift of quickly grasping the outward aspect of many things—*Auffassungsgabe*. Thus, there is in him a specious, plausible affectation of acquaintanceship with literature, ranging from the works of Jules Simon to those of Mark Twain—naval matters, military matters (statecraft goes without saying)—all this notwithstanding that his life has been short, and that he has not read a book for years. Indeed, of late reading has been a physical impossibility, for all available time has been duly chronicled as filled up with hunting parties, yacht sailings, torpedo trips, railway journeys, festive banquets, christenings, weddings, funerals, manœuvres, and such like efforts, for all of which there has ever been ample time and opportunity.

But the glamour of it all sufficed for the time for endless reporters' articles. It was just of a kind to dazzle and excite the admiration of the enthusiastic American who wrote home, after being the Emperor's guest at the manœuvres, that another Frederick the Great was the least that the world had to expect. Men of that stamp do not stop to think, much less to listen, even supposing that they have the faculties for doing so. Otherwise it might have dawned upon them, or been taught them, that such gifts are ever, except in such rare instances as that of Napoleon the First, the almost infallible signs of superficiality. And if listening had been cultivated, the following story might have been brought home from the manœuvres. The field day is over, and the Emperor rides down the front, taking the report of each commanding officer as he passes along the line. One of them in answer to the Imperial query had nothing to report.

"What, nothing?"

"No, nothing, Sir."

"Nonsense; I command you to make me a report."

"Well, then, if your Majesty commands, I must obey; and all I can say is, that the whole affair was one confounded mess."

That dilettantism must be the outcome of this superficiality, allied to a morbid craving for immediate tangible positive results all along the line, is self-evident. Everything is to go by the word of command; opportuneness, maturity of time, the one condition of all sound work, this is at once abolished; it is not to be found in the corporal's drill book. The consequences have not been long in showing themselves in more departments than one—let us say in every department.

The record of this unfortunate dilettantism—spelling the outcome of good intentions and phenomenal energy, translated into concrete performance—is open to the inspection of him who runs. It traverses every field of the Emperor's manifold activity. The disastrous attempts to win French sympathies by tentative visits, by letters to painters' widows, etc., are still fresh in the memory of the public. The ill-judged premature dragging forth of poor Dr. Koch—the most retiring of men—under the garish lamp of publicity, to endow the world with a gratuitous boon (but see, it is *I* who have given it), is also sufficiently well known and appreciated.

Of military matters it is difficult to judge. We are invited to believe that the aged, the used up, and the unfit have been weeded out; but we hear nothing of the approved capacities which have been shunted. For these men do not air their grievances—like linen hung to dry—in the sun of publicity. Silence on these matters is the golden watchword of such men in Prussia. And besides, the Emperor has a gift, almost amounting to genius, of loading with flattery those whom he has decided to cast out. But a straw may indicate the direction of the wind, and there are several such. All the cavalry have been armed with steel lances, whereas in Austria lances have been totally abolished. Which is the right course? No one can tell for certain, it is true. But the lances themselves have been tested and are said to have failed in the manœuvres, for they break easily and cannot be as readily replaced as those made of wood. The small sword of the infantry officer with its leather scabbard has been abolished, and a heavy dragoon sword substituted. So

that, whereas formerly the officer's sword was a distinct symbol of the moral authority of the officer, for all officers are armed besides with revolvers (and that equipment seems to have answered fairly well in two great wars), the heavy sword is thought by many to be an unnecessary encumbrance. The Emperor in his spirit of imitation is even said not to disdain to take hints from English military arrangements, and is credited with the intention of introducing regimental canteens into Germany. It is to be hoped that he will stop short of introducing English adulterated bread.

But the educational crusade crowns the edifice. It was originally intended to broaden the character of Germany's youth. It has taken a strange road to attain that end.

No wonder that jokes at the Emperor's expense, the sum of which would fill volumes, are current throughout the land. One of them, referring to his mania for travelling, will, we think, even bear rendering into English:

"All hail to thee! In special train
Still travel on and on again.
When soon you do run off the rail,
You'll hurry off to Bismarck then
And we shall welcome him again." *

Yet his vanity is said to be such that he has no idea of the comments his eccentricities call forth. His faith in his personal irresistibility is said to be invincible. In fact so much so, that the shock of a discovery of the real feeling of a large section of the community might have serious mental consequences. Hence the superb naïveté of his "pose" on all occasions. Those who have watched it smile, when they read that the Emperor has consented to preside on such and such an occasion. Why of course he consents: it is a necessity of life to him to preside, or to be doing something—by predilection something to be reported. Even during these northern journeys something must always be on the *tapis*, practical jokes—*jeux de société*—or some weird eccentricity or other, to contribute to which a staff of

* "Heil Dir im Sonderzug
Reisest noch nicht genug,
Reis' immer mehr.
Wenn Du dann bald entgleist,
Rasch Du zum Bismarck eilst
Holst ihn uns her."

bottle-holders and yarn-spinners is necessary.

Perhaps the most ominous joint product of the Emperor's vanity and superficiality combined is the "*Grössenwahn*" (megalomania) which he seems to be developing at an alarming rate. This is not surprising, for megalomania—the diseased estimate of the relative properties of things—has something of a local character; it is among badly balanced creatures in Germany what is called spleen in England. Even Napoleon's was a simple nature until he became afflicted with this dreadful complaint, and yet what a Cæsar's head that man had! It is this megalomania which causes the deepest anxiety in Germany, because it is feared that it may lead to some irreparable piece of want of tact, and thence to war. For it is argued that, vanity being at the bottom of it all, and the Emperor finding he is unable to gain the premature immortality he thirsts for by peaceful prodigies, his restless nervous irritability may further increase, and degenerate into recklessness, and then his megalomania may blind him to the dangers he, and above all poor blood-soaked Germany, must encounter on the war-path. It would seem that the danger of this is largely increased when we bear in mind that there is a party in Berlin eager for war with Russia—the sooner the better,—and that the opinion of military men in Prussia in general is strongly optimistic as to its probable results.

Therefore the Emperor's intended journey to Copenhagen in the coming summer is viewed with anxiety. It is even said that his sudden resolution with regard to the Guelph fund, without consulting the voice of the nation, let alone the man who was responsible for its sequestration, is only dictated by a wish to make his reception the more cordial at the golden wedding of the Danish royal couple, at which he is not wanted. Neither does it add to the popularity of this step, or lend weight to the argument of its opportuneness, when the Germans read that foreign potentates—notably the Queen of England—have urged the settlement. The Germans have the highest admiration for the Queen, as Queen of England, but they think they have no reason to desire her counsel in their own affairs.

The proposed journey to Roumania is also not to the liking of many; for they

remember the words of their great statesman, that the affairs of the Lower Danube are not worth to Germany "the bones of a single Pomeranian grenadier." The Emperor evidently sees German interests on the Danube, as elsewhere, through a different glass to that of his former Chancellor.

This incapacity for seeing the due proportions—the fitness of things—also shows itself in other matters besides politics; be they important or trivial, as long as they admit of personal treatment, there the idiosyncrasy is apparent. Hence endless incongruities and instances of maladroitness, of wounds that fester on long after they have slipped the memory of him who had inflicted them. Such instances are indeed so numerous as to make selection a difficult matter. Last summer all Germany was fed with accounts of the reception of the Emperor in England, and of the lavish distribution of presents—the inevitable portraits included. In the autumn the Emperor was a guest of the town of Erfurt during the manœuvres; £5000 were spent on his reception there. Yet he hardly deigned to smile on the city fathers assembled to greet him, and—a most unusual thing in Germany—left the town without conferring a single token of his favor on anybody. This is but one instance of marked slights alternating with disproportionately lavish prodigality. In fact, it is said to be not easy to avoid being decorated or snubbed by the Emperor.

A most pregnant example of both was his slighting conduct on the occasion of the jubilee of Professor Virchow, contrasted with his going out of his way, immediately afterward, to distinguish Professor Helmholtz, whom, by the way, he saw the other day, in the unwelcome part identified with the words "*καὶ σὺ, τέκνον*" among the Berlin professors protesting against the proposed Education Bill. It is not necessary to know a man such as Professor Helmholtz personally, in order to feel sure that a compliment to him implying a slight or a reproach to his distinguished colleague must have lost a great deal of its value.

But there seems to be method in this procedure, for it was only yesterday that the Emperor addressed words of flippant, ironical banter to a deputation of professors of the University of Halle, such as these men are not likely to forgive in a

hurry, even to an Emperor. For the German professor is a gentleman who has a very keen sense of his personal honor and dignity, which he does not easily lose sight of, even in the presence of royalty; and the traditions of his class justify him in holding them above every attempt at slight or contumely. But this tone of undergraduate banter, which the Germans know under the term of "*Burschikoses Benehmen*," and which the Emperor adopts, as the humor takes him, with the highest as with the humblest, has already had worse than personal results. It is indirectly answerable for the large increase of an offensive type of German, formerly unknown. No wonder, when the Emperor inculcates beer drinking and rapier-play as the means of attaining ideals in life! And this in the grandson of a man whose urbanity toward all was proverbial; who at his death was said, with some justice, never to have conferred distinction on an unworthy person, even in fields of activity beyond his knowledge. Could anybody say as much of the grandson to-day? But William the First not only took advice: he knew whence to take it.

In nothing has his successor's indiscriminate want of tact, in combination with the love of "pose"—the artificiality of feeling of the born actor—shown to greater disadvantage than his relationship to the late Field-Marshal Moltke from the moment of Bismarck's dismissal down to the death of the former. It was of a nature to make one doubt the sincerity of what seemed to be his most genuine utterances and actions. Poor old Moltke had to accompany his Sovereign by day and by night on his excursions, and everybody could see through the transparent motive. In fact it disgusted many to see the old gentleman's courtier-like devotion to his young Sovereign thus taken advantage of, and some are still of opinion that these ridiculous journeys hastened Count Moltke's death. But the climax was reached when the news of his death—meeting the Emperor on one of his many excursions—produced the following telegram:—

"I am amazed; I have lost an army; I am coming back!"

Was ever the first personal pronoun used with more damning effect—and that too, by a man whose kind-hearted father on

coming to the throne thrilled all hearts by his simple words? How easily, one would think, might the son have imitated his father on this occasion! What could the shrewd Berliners think of the Emperor's tears at Moltke's bier, after those pronouns? Besides, they knew that the eagle-eyed Moltke was not the sort of man people easily cry over—least of all a born actor!

And yet with the German Emperor, as with all things human, there are lights as well as shades. He is insensible to the attraction of money, though unfortunately not equally so to the things that money can buy. There can be no doubt that he possesses a certain love of justice and fair play, as far as it does not interfere with the gratification of his vanity. Thus the reformed income-tax was undoubtedly due to his belief that the wealthy classes escaped their fair share of taxation. Also it draws our sympathies toward him to bear in mind that he has often been the subject of malicious libel and slander—poisonous weeds that flourish luxuriantly in Germany—and this without the slightest justification. The legend of his heartless conduct to his mother has even reached the English shores. To discuss such things in one less eager for the light of publicity himself would seem to savor of bad taste, for they are mostly beyond the ken of outsiders, and most certainly beyond their judgment. But the Emperor's personality is so exceptional that we feel no diffidence in insisting on the groundlessness of these tales. The real fact of the matter is, that his strong-willed mother used grievously to outrage his vanity by ordering "Willie" about long after he had come to the conviction of his divine mission. Even now the Emperor has unconsciously a feeling of profound awe—yes, of jealousy—for his mother; and if she would only frankly acknowledge the heaven-sent Evangelist—the Great Man—in her son "Willie," there is nothing she could not do with him. But his mother is a proud and obstinate woman.

More serious are the doubts that have been expressed with regard to his qualities of heart. Frederick the Great had little heart, but he was above vanity. Vanity is a mortgage on the heart, as it is on the understanding. We believe the Emperor to be endowed with as much heart as his vanity leaves room for and allows him to

possess—heart of an emotional, surface kind. An exaggerated boisterous *bonhomie* seems to monopolize the place in his system which German "*Gemüth*" held in that of his finer strung father.

To sum up: his whole demeanor is at variance with the one imperative quality to which Lord Macaulay refers in his essay on the Earl of Chatham: "He was an almost solitary instance of a man of real genius, and of a brave, lofty, and commanding spirit, without simplicity of character."

Do the Emperor's flatterers lead him to believe that he is another such rare exception? There is yet a sphere in which he can do sound work of the highest order; and this at once—over night—in a single day. It is of the kind the German poet extolled as being far and away nobler than the slaying of dragons. It is the fight which not only the German Emperor, but each of us must wage, if he would conquer the spirit of crass self-advertising

egotism which more or less pervades our time.

This is the only way to attain what the Emperor has himself declared to be his aim, and the distinguishing feature of his best ambitions: the being abreast of the "time," and thus being able to direct the course of events. But to do that you must conquer yourself before you aspire to the mastery of others. In his special case it would mean to conquer this restless energy in the cause of self-glorification, to subdue within reasonable limits this excessive vanity which, like the naked flesh of the beggar, peeps out beneath the rags of his Titanic energy, these publicly vaunted good intentions. This would be a fight, compared with which his diplomatic duel with Prince Bismarck would be child's play. It is sad to think that he would have to fight this battle alone, single-handed, alone in communion with the Deity he so often invokes.—*Contemporary Review*.

HOW LONG CAN THE EARTH SUSTAIN LIFE?

BY SIR ROBERT BALL, F.R.S.

It seems to be worth while to collect together what may be said on the subject of the duration of life on the globe viewed as a problem in physics, and this is the subject I propose to discuss in the present article.

In the first place, it will be desirable to define a little more clearly the exact question which is to engage us, so as to avoid raising collateral inquiries on which it would not be convenient now to enter. Let it be first of all understood that I am not intending to discuss at present the question in its biological point of view, at least not more than to allude to the conceivability that there can be biological reasons for anticipating a termination to man's existence some time or other. Why, it may be asked, should the human species expect to enjoy perennial existence, seeing that the facts of paleontology show us that multitudes of races of animals have had their little day, and vanished? It would, at least, be necessary for man to see clear grounds for his belief before he could fancy himself entitled to an immunity from the destruction which seems to be the des-

tiny of other species. Biological agents for the extinction of man have been suggested with plausibility. The influenza bacillus was lately rampant over the world. Is there any security against some other bacillus quite as ubiquitous, and ten times as fatal, coming to take its abode among us? It may be that the intelligence of man shall be able to cope with the deadly influences that are around him, and that thus the human race may be preserved from the annihilation that seems to await all unintelligent races of animals. The Kochs of the future may be able to devise means by which the ravages of the bacilli in the human body can be restrained within moderate bounds, if not wholly frustrated. The advent of intelligent beings on the globe has certainly introduced a factor into evolution the full import of which we are not at present able to appreciate. Speaking broadly, we may assert that every species of animal gradually vanishes, or is transformed into what may be considered a creation of different character. There are, of course, a few apparent exceptions among organizations of a low type. But

the instances of such identities at epochs separated by so vast a period are comparatively few, and they are not to be met with among animals of the higher type. Though some of the lower animals to which we have referred may be of more abiding duration than the higher forms, yet it by no means follows that any of the lower types are qualified for indefinitely long existence. It seems much more likely that, when sufficient time has elapsed, they will not be found exceptions to the law that the duration of every species is limited. The paleontological evidence, so far as it goes, must therefore be held to suggest that the present human animal, like every other species, is necessarily doomed to disappear, unless in so far as the presence of intelligence may be able to avert the fate that seems to attend every species in which intelligence is absent. How far intelligence may be able to accomplish this is a point on which paleontology gives no guidance whatever. Would the plesiosaurus, if he had been gifted with reasoning power, have been able to do such battle for his race that they would have survived those changes and chances which have certainly swept such creatures from existence? Without speculating on such a question, we may, nevertheless, believe that intelligence can sometimes confer on the species which possesses it a degree of pliancy in accommodating itself to altered conditions of the environment superior to that enjoyed by organisms without intellectual power. It may be noted that man has preserved at least one species of animal from the extinction which to all appearance would otherwise have overtaken it. The camel, as a wild animal, is wholly extinct. In fact, its nearest ally at present living in a state of nature must be sought in the New World. The camel itself, and its immediate congeners, have been so totally extirpated as wild animals, that it is to the llamas and alpacas of Peru that we have to look for the nearest wild animals to the ship of the desert, which has from time immemorial been domesticated in the East. It is at least conceivable that what man has been able to do for other races of animals he can also do on behalf of that race to which he himself belongs. Suppose that the succession of summer and winter, of seedtime and harvest, were to last indefinitely; suppose that the sun was never to be less generous in the dispensing

of his benefits than he is at present, it is quite possible that man's intelligence might be able to defeat various enemies which threaten the extinction of his species. It seems useless for us to discuss this question, for it is perfectly certain that though man might successfully combat some of the agents seeking for his destruction, there is certainly one that it would be wholly beyond his power to subdue. An agent over which he has and can have no control whatever imposes a term to his existence; nor does it seem possible for human intelligence to avert the threatened doom. To point out the necessity for this conclusion is my object in this paper.

I know that in the present day there are many who seem to think that hardly any boundaries can be assigned to the resources of a reasoning being. I have heard that when King Hudson in the zenith of his fame was asked as to what his railways were to do when all the coal was burned out, he replied that by that time we should have learned how to burn water. Those who are asked the same question now, will often reply that they will use electricity, and doubtless think that they have thus disposed of the question. The fallacy of such answers is obvious. A so-called "water gas" may no doubt be used for developing heat, but it is not the water which supplies the energy. Trains may be run by electricity, but all that the electricity does is to convey the energy from the point where it is generated to the train which is in motion. Electricity is itself no more a source of power than is the rope with which a horse drags a boat along the canal. There is much more philosophy in the old saying, "Money makes the mare go," than in the optimistic doctrine we often hear spoken of with regard to the capacity of man for dealing with nature. The fact is that a very large part of the boasted advance of civilization is merely the acquisition of an increased capability of squandering. For what are we doing every day but devising fresh appliances to exhaust with ever greater rapidity the hoard of coal. There are just a certain number of tons of coal lying in the earth, and when these are gone there can be no more forthcoming. There is no manufacture of coal in progress at the present time. The useful mineral was the product of a very singular period in the earth's history, the like of which has not

again occurred in any noteworthy degree in the geological ages which have since run their course. Our steam-engines are methods of spending this hoard; and what we often hear lauded as some triumph in human progress is merely the development of some fresh departure in a frightful extravagance. We would justly regard a man as guilty of expending his substance wastefully if he could not perform a journey without a coach-and-six and half-a-dozen outriders, and yet we insist that the great steamers which take us across the Atlantic shall be run at a speed which requires engines, let us say, of 12,000 horse-power. If the number of passengers on such a vessel be set down as 500, we have for each passenger the united force of 24 horses, night and day, throughout the voyage. I expect our descendants will think that our coal cellars have been emptied in a very wasteful manner, particularly when they reflect that if we had been content with a speed somewhat less than that at present demanded the necessary consumption of coal would have been reduced in a far greater proportion than the mere alteration of speed would imply.

Of course, no one will contend that the exhaustion of coal means the end of the human race; man lived here for tens of thousands of years before he learned how to use coal. There may be a sort of Chinese-like civilization quite compatible with the absence of mineral fuel, at all events in regions where the climate is tolerably mild. We must also remember, as Professor Crookes has so forcibly pointed out, in a recent article, that there are vast stores of energy available elsewhere. The radiation from the sun, if it could be suitably garnered up and employed both directly as heat and indirectly as a source of power, would be quite capable of supplying all conceivable wants of humanity for ages. It is also to be noted that we live on the outside of a globe the inside of which is filled with substances that appear, from all we can learn, to have a temperature not less than that of molten iron. If the crust could be pierced sufficiently far, vast indeed is the quantity of heat that might be available. We see the operation of tapping the internal heat going on in nature. Every volcanic outbreak, every spring of hot water, every geyser are but indications of the internal heat of our

globe. It may indeed be hard to see how a practical method for drawing on this vast reserve of heat can be devised, but it is at least conceivable that it may be rendered available when the coal and other more accessible sources have become exhausted, or even when their yield has considerably lessened.

The coal of England may last a century or two; the coal in other parts of the globe may supply our cellars for a few centuries more, but the exhaustion of this truly marvellous product is proceeding at an accelerated pace. Doubtless the end of the coal, at least as an article of a mighty commerce, will arrive within a period brief in comparison with the ages of human existence. In the history of humanity from first to last the few centuries through which we are now passing will stand out prominently as the coal-burning period.

It is a noteworthy fact that the possibility of the continued existence of the human race depends fundamentally upon the question of heat. If heat, or what is equivalent to heat, does not last, then man cannot last either. There is no shirking this plain truism. It is therefore necessary to review carefully the possible sources of heat and see how far they can be relied upon to provide a continuous supply.

Of course it is obvious that the available heat generally comes from the sun. It may be used directly, or it may be and often is used indirectly, for nothing can be more certain than that it is sun heat in a modified form which radiates from a coal fire in the drawing-room or from a log fire in the backwoods. As the sun shines on the growing vegetation, the leaves extract the warmth from the sunbeams. The organism wants carbon, and to obtain it decomposes the carbonic acid gas of which a certain proportion is always present in the air. To decompose this gas requires the expenditure of heat or of what is equivalent to heat. But this does not show itself in raising the temperature of the carbon and oxygen after they have been dissociated. Their temperature may be no higher than was that of the carbonic acid from which they have come, but the heat has been expended in the process of forcing the several molecules asunder from the close and intimate union of their combined condition.

As the growing plant must have carbon, it draws that carbon from the atmosphere,

and the heat that is required to effect the decomposition of the carbonic acid is obtained from sunbeams. When the carbon thus derived by the plant comes ultimately to be burned it reunites with the oxygen of the air, and in the act of doing so evolves an amount of heat precisely equivalent to that which was absorbed from the sunbeams. Thus it is that the heat now radiating from our fireplaces has at some time previously been transmitted to the earth from the sun. If it be timber that we are burning, then we are using the sunbeams that have shone on the earth within a few decades. If it be coal, then we are retransforming to heat the solar energy which arrived at the earth millions of years ago.

The question as to the continued existence of man on this globe resolves itself eventually into an investigation as to the permanence of the heat supply. Doubtless human life requires many other conditions, but of this we may feel assured, that if the heat fail and if nothing else be forthcoming which can be transformed into heat, then most assuredly from this cause alone there is a term to human existence. Before discussing the prospect of the duration of sunbeams we may first consider a few other less important sources of heat. So far as the coal goes, we have already observed that as it is limited in quantity it can offer no perennial supply. Doubtless there is in the earth some quantity of other materials capable of oxidation, or of undergoing other chemical change; in the course of which and as an incident of such change heat is evolved. The amount of heat that can possibly arise from such sources is strictly limited. There is in the entire earth just a certain number of units of heat possible from such chemical combinations, but after the combination has been effected there cannot be any more heat from this source.

Then as to the internal heat of the earth due to the incandescent state of its interior. Here there is no doubt a large store of energy, but still it is of limited quantity, and it is also on the wane. This heat is occasionally copiously liberated by volcanoes, but ordinarily the transit of heat from the interior to the surface and its discharge from thence by radiation is a slow process. It is however sufficient for our present purpose to observe that slow though the escape may be, it is incessantly

going on. There is only a definite number of units of heat contained in the interior of the earth at this moment, and as they are gradually diminishing, and as there is no source from whence the loss can be replenished, there is here no supply of warmth that can be relied on permanently. It must also be mentioned that there exists another store of energy which under certain conditions admits of being transformed into heat. I allude to the energy which the earth possesses in virtue of its rapid rotation on its axis. In this respect we may liken our globe to a mighty fly-wheel which contains a certain quantity of energy that must be poured forth as its speed is reduced. It is the action of the tides which enables this form of earth energy to be transformed into heat. The tides check the speed with which the earth rotates. The energy thus lost must in part at least be transformed into heat which is then again lost by radiation into space. Of course the quantity of energy which the earth possesses by reason of its rotation is of limited amount, and it is steadily being dissipated just as the internal heat is being lost and just as the potential heat that exists in consequence of unsatisfied chemical attraction is also declining. It seems that whenever the tides shall have so checked the earth that it only rotates at half its present speed, the quantity of the energy now existing in consequence of the rotation will have been reduced to a fourth of its present value.

Next as to the various forms in which sun heat is received. We have already referred to the mode in which it is captured by growing plants. There is also another indirect method in which the sun heat is made to provide energy useful to man. The waterfall which turns the mill-wheel is of course really efficient because the water is running down, and it can only run down because it has first been raised up. This raising is accomplished by sunbeams. They beat down on the wide expanse of the great oceans, there they evaporate the water and the vapor soars aloft into the heights of the atmosphere where it forms clouds. It is of course the solar energy that has performed this task of lifting, and as the rain descends it becomes collected into the streams and rivers which on their way to the sea are made to turn the waterwheels. In like manner it is of course the action of

the sun which sets in motion great volumes of air to form the winds, so that when we employ windmills to grind our corn we are utilizing energy diffused from the sun.

It goes without saying that the welfare of the human race is necessarily connected with the continuance of the sun's beneficent action. We have indeed shown that the few other direct or indirect sources of heat which might conceivably be relied upon are in the very nature of things devoid of the necessary permanence. It becomes therefore of the utmost interest to inquire whether the sun's heat can be calculated on indefinitely. Here is indeed a subject which is literally of the most vital importance so far as organic life is concerned. If the sun ever ceases to shine, then must it be certain that there is a term beyond which human existence, or indeed, organic existence of any type whatever cannot any longer endure on the earth.

We may say once for all that the sun contains just a certain number of units of heat actual or potential, and that he is at the present moment shedding that heat around with the most appalling extravagance. No doubt the heat-hoard of the sun is so tremendous that the consequences of his mighty profusion do not become speedily apparent. They are indeed, it must be admitted, hardly to be discerned within the few brief centuries that the sun has been submitted to human observation. But we have grounds for knowing as a certainty that the sun cannot escape from the destiny that sooner or later overtakes the spendthrift. In his interesting studies of this subject, Professor Langley gives a striking illustration of the rate at which the solar heat is being squandered at this moment. He remarks that the great coalfields of Pennsylvania contain enough of the precious mineral to supply the wants of the United States for a thousand years. If all that tremendous accumulation of fuel were to be extracted and burned in one vast conflagration, the total quantity of heat that would be produced would no doubt be stupendous, and yet, says this authority, who has taught us so much about the sun, all the heat developed by that terrific coal fire would not be equal to that which the sun pours forth in the thousandth part of each single second. When we reflect that this expendi-

ture of heat has been going on not alone for the centuries during which the earth has been the abode of man, but also for those periods which we cannot estimate, except by saying that they are doubtless millions of years during which there has been life on the globe, then indeed we begin to comprehend how vast must have been the capital of heat with which the sun started on its career.

But now for the question, of supreme importance so far as organic life is concerned, as to the possibility of the indefinite duration of the sun as a source of radiant energy. It may indeed be urged that there is no apparent decline in the warmth of the sun and the brilliancy of the light that he diffuses. There is no reason to think from any historical evidence, or indeed from any evidence whatever, that there is the slightest measurable difference between the radiance of the sun that was shed on the inhabitants of ancient Greece and the radiance that still falls on the same classic soil. So far as our knowledge goes, the plants that now grow on the hills and plains of Greece are the same as the plants which grew on the same hills and plains two thousand years ago. It is, of course, true that the significance of the argument is affected by the circumstance that organisms by the influence of natural selection can preserve a continuous adaptation to an environment which is gradually becoming modified. The olive grows in Greece now, and a tree called by the same name grew there a couple of thousand years ago. I do not suppose that any one is likely to doubt that the ancient olive and the modern olive are at all events so far alike that plants identical in every respect with the olive of ancient times could flourish where the modern olive now abounds. That there have been great climatic vicissitudes in times past is of course clearly shown by the records of the rocks. It is almost certain that astronomical causes have been largely concerned in the production of these changes, but from among these causes we may exclude the variations in the sun's heat. There does not seem to be the least reason to suppose that any alteration in the rate at which the sun diffuses heat has been a cause of the vicissitudes of climates which the earth has certainly undergone within geological times.

And yet we feel certain that the inces-

sant radiation from the sun must be producing a profound effect on its stores of energy. The only way of reconciling this with the total absence of evidence of the expected changes is to be found in the supposition that such is the mighty mass of the sun, such the prodigious supply of heat, or what is equivalent to heat that it contains, that the grand transformation through which it is passing proceeds at a rate so slow that, during the ages accessible to our observations, the results achieved have been imperceptible. Think of a sphere the size of the earth. Would it be possible to detect the curvature of a portion of its equator a yard in length? To our senses, nay, even to our most refined measurements, such a line, though indeed a portion of a circular arc, would be indistinguishable from a straight line. So is it with the solar radiation. To our ephemeral glance it appears to be quite uniform; we can only study a very minute part of the whole series of changes, so that we are as little able to detect the want of uniformity as we should be to detect the departure from a straight line of the arc of a circle which we have given as an illustration.

We cannot, however, attribute to the sun any miraculous power of generating heat. That great body cannot disobey those laws which we have learned from experiments in our laboratories. Of course no one now doubts that the great law of the conservation of energy holds good. We do not in the least believe that because the sun's heat is radiated away in such profusion that it is therefore entirely lost. It travels off no doubt to the depths of space, and as to what may become of it there we have no information. Everything we know points to the law that energy is as indestructible as matter itself. The heat scattered from the sun exists at least as ethereal vibration if in no other form. But it is most assuredly true that this energy so copiously dispensed is lost to our solar system. There is no form in which it is returned, or in which it can be returned. The energy of the system is as surely declining as the energy of the clock declines according as the weight runs down. In the clock, however, the energy is restored by winding up the weight, but there is no analogous process known in our system.

It was long a mystery how the sun was

able to retain its heat so as to continually supply its prodigious rate of expenditure. The suppositions that would most naturally occur were shown to be utterly insufficient. We know that a great iron casting often takes many hours to grow cold after it has been drawn from the mould. If the casting be a sufficiently large one, the cooling will proceed so slowly that it will not get cold for days because the tardiness of cooling increases with the dimensions of the body. It was not, perhaps, unnatural to suppose that as the sun was so vast the process of cooling would proceed with such extreme slowness that notwithstanding the quantity of heat poured out every second, the annual amount of loss would be so small relatively to the whole store that the effect of that loss would be imperceptible in such periods as those over which our knowledge extends. This supposition, however plausible, is speedily demolished when brought to the test by which all such questions must be decided—the test of actual calculation. We can determine with all needful accuracy the store of heat that the sun would contain if regarded merely as a white hot solid globe. When we apply the known annual loss, we see at once that if the sun had merely the simple constitution here supposed, the annual expenditure would bear such a considerable proportion to the total supply that the effect of the loss would become speedily apparent. It is certain that the sun must under such circumstances fall some degrees in temperature each year. In a couple of thousand years the change in temperature would be sufficiently great to affect in the profoundest manner the supply of sunbeams. As, however, we know that for a couple of thousand years, or, indeed, for periods much longer still, there has been no perceptible decrease in the volume of solar radiations, we conclude that the great luminary cannot be regarded merely as a glowing solid globe dispensing its heat by radiation. There is another supposition as to the continuance of sun heat which must be mentioned only, however, to be dismissed as quite incapable of offering any solution of the problem. As we generate heat here so largely by the combination of fuel, it has been sometimes thought that a similar process may be in progress on the sun. It has been supposed that elements capable

and desirous of chemical union may exist in the sun in such profusion that by their entering into association a quantity of heat is liberated sufficient to account for the continuous dispersal by radiation. Here, again, the test must be applied which is decisive of such pretensions. It may certainly be the case that chemical actions of one kind or another are going on in the sun, and among them are doubtless some of such a character that they evolve heat. But we happen to know exactly how much heat can be evolved by the action of specified quantities of elementary bodies by whose union heat is generated. It appears clear from the figures that chemical action is a wholly inadequate method of accounting for solar radiation. To take one instance, we may mention that if the sun had been a globe of white-hot carbon, and if there had been a sufficient supply of oxygen to effect its combustion, the total heat generated by the entire mass would not supply the solar radiation for the period that has elapsed since the building of the pyramids. It is, therefore, clear that the supposition that the sun is a burning globe, like the supposition of the sun as a cooling solid globe, is quite inadequate to explain the marvellous persistence with which, for countless ages, the orb of day has distributed its beams.

There is another supposition which, though not itself providing the explanation that we are searching for, still points so far in that direction that I have kept it till the last. It has been sometimes suggested that the dashing of meteoric matter into the sun from outside may afford the requisite supply of energy. There can be no doubt that the plunge of a meteor into the sun's atmosphere with the terrific velocity which it will necessarily acquire in consequence of the attraction of the sun, is accompanied by the transformation of the energy of the meteor's movement into light and heat. The quantity of energy that a meteor thus carries with it is so vast that it is hardly credible until the figures which express it and the grounds on which they are based have received due attention. Let us think of a meteor which is moving, as such bodies do when near the earth, with a speed perhaps a hundred times as great as that of a bullet from a rifle, or even from one of the most finished pieces of artillery. The

energy of the meteor, depending as it does upon the square of the velocity, will be, therefore, about ten thousand times that of the bullet of the same size. It seems that the energy thus possessed by a meteor one pound in weight is as much as could be developed by the explosion of a ton weight of gunpowder. Doubtless, in the vicinity of the sun, the meteors are more numerous, and they move with a higher velocity than the meteors near the earth. It is therefore plain that the quantity of energy contributed to the sun from this source must be large in amount. It can, however, be shown that there are not enough meteors in existence to supply a sufficient quantity of heat to the sun to compensate the loss by radiation. The indraught of meteoric matter may indeed certainly tend in some small degree to retard the ultimate cooling of the great luminary, but its effect is so small that we can quite afford to overlook it from the point of view that we are taking in this paper.

It is to Helmholtz we are indebted for the true solution of the long-vexed problem. He has demonstrated, in the clearest manner, where the source of the sun's heat lies. It depends upon a cause that, at the first glance, would seem an insignificant one, but which the arithmetical test, that is so essential, at once raises to a position of the greatest importance. It is sufficiently obvious that the sun is in no sense to be regarded as a solid body. It seems very unlikely that there can be throughout its entire extent any portion which possesses the properties of a solid; certainly those exterior parts of the sun which are all that are accessible to our observation are anything but solid: they are vast volumes of luminous material floating in gases of a much less luminous nature. The openings between the clouds form the spots, while the mighty projections which leap from the sun's surface testify in the most emphatic manner to the gaseous or vaporous character of the outer parts of the great luminary. A gaseous globe like the sun when it parts with its heat observes laws of a very different type from those which a cooling solid follows. As the heat disappears by radiation the body contracts; the gaseous object, however, decreases in general much more than a solid body would do for the same loss of heat. This is connected with a striking difference between the manner in which the

two bodies change in temperature. The solid, as it loses heat, also loses temperature; the gas on the other hand, does not necessarily lose temperature even though it is losing heat. Indeed, it may happen that the very fact that the gaseous globe is losing heat may be the cause of its actually gaining in temperature and becoming hotter. This seems a paradox at the first glance, but it will be found not to be so when due attention is paid to the different notions that belong to the words heat and temperature. The globe of gas unquestionably radiates heat and loses it, and the globe, in consequence of that loss, shrinks to a smaller size. The heat, or what is equivalent to heat, that is left in the globe, is exhibited in a body of reduced dimensions, and in that smaller body the heat shows to such advantage that the globe actually exhibits a temperature hotter than before the loss of heat took place. In the facts just mentioned we have an explanation of the sustained heat of the sun. Of course we cannot assume that in our calculations the sun is to be treated as if it were gaseous throughout its entire mass, but it approximates so largely to the gaseous state in the greater part of its bulk that we can feel no hesitation in adopting the belief that the true cause has been found. To justify the adequacy of this method of explaining the facts I may mention the following result of a calculation. If the sun were to lose sufficient heat to enable it to shrink in its diameter by one ten thousandth part of its present amount, the quantity of heat that would be available in consequence of this contraction would suffice to provide the entire radiation for a period of 2000 years. Such a diminution of the sun's bulk would be altogether too small to be perceptible by the most refined measurements that we can make in the observatory. Hence we are able to understand how the prodigious radiation of the sun during all the centuries of history can be accounted for without any alteration in the dimensions of the great luminary having yet become appreciable.

But there is a boundary to the prospect of the continuance of the sun's radiation. Of course, as the loss of heat goes on, the gaseous parts will turn into liquids, and as the process is still further protracted, the liquids will transform into solids. Thus we look forward to a time when the radiation of the sun can be no longer conduct-

ed in conformity with the laws which dictate the loss of heat from a gaseous body. When this state is reached the sun may, no doubt, be an incandescent solid with a brilliance as great as is compatible with that condition, but the further loss of heat will then involve loss of temperature. At the present time the body may be so far gaseous that the temperature of the sun remains absolutely constant. It may even be the case that the temperature of the sun, notwithstanding the undoubted loss of heat, is absolutely rising. It is, however, incontrovertible that a certain maximum temperature having been reached (whether we have yet reached it or not we do not know), temperature will then necessarily decline. There is certainly no doubt whatever that the sun, which is now losing heat, even if not actually falling in temperature, must, at some time, begin to lose its temperature. Then, of course, its capacity for radiating heat will begin to abate. The heat received by the earth from the great centre of our system must, of course, decline. There seems no escape from the conclusion that the continuous loss of solar heat must still go on, so that the sun will pass through the various stages of brilliant incandescence, of glowing redness, of dull redness, until it ultimately becomes a dark and non-luminous star. In this final state the sun will literally join the majority. Every analogy would teach us that the dark and non-luminous bodies in the universe are far more numerous than the brilliant suns. We can never see the dark objects, we can discern their presence only indirectly. All the stars that we can see are merely those bodies which at this epoch of their career happen for the time to be so highly heated as to be luminous.

There is thus a distinct limit to man's existence on the earth, dictated by the ultimate exhaustion of the sun. It is, of course, a question of much interest for us to speculate on the probable duration of the sun's beams in sufficient abundance for the continued maintenance of life. Perhaps the most reliable determinations are those which have been made by Professor Langley. They are based on his own experiments upon the intensity of solar radiation, conducted under circumstances that give them special value. I shall endeavor to give a summary of the interesting results at which he has arrived.

The utmost amount of heat that it would ever have been possible for the sun to have contained would supply its radiation for 18,000,000 years at the present rate. Of course, this does not assert that the sun, as a radiant body, may not be much older than the period named. We have already seen that the rate at which sunbeams are poured forth has gradually increased as the sun rose in temperature. In the early times the quantity of sunbeams dispensed was much less per annum than at present, and it is, therefore, quite possible that the figures may be so enlarged as to meet the requirements of any reasonable geological demand with regard to past duration of life on the earth.

It seems that the sun has already dissipated about four fifths of the energy with which it may have originally been endowed. At all events, it seems that, radiating energy at its present rate, the sun may hold out for 4,000,000 years, or for 5,000,000 years, but not for 10,000,000 years. Here then we discern in the remote future a limit to the duration of life on this globe. We have seen that it

does not seem possible for any other source of heat to be available for replenishing the waning stores of the luminary. It may be that the heat was originally imparted to the sun as the result of some great collision between two bodies which were both dark before the collision took place, so that, in fact, the two dark masses coalesced into a vast nebula from which the whole of our system has been evolved. Of course, it is always conceivable that the sun may be re-invigorated by a repetition of a similar startling process. It is, however, hardly necessary to observe that so terrific a convulsion would be fatal to life in the solar system. Neither from the heavens above, nor from the earth beneath, does it seem possible to discover any rescue for the human race from the inevitable end. The race is as mortal as the individual, and, so far as we know, its span cannot under any circumstances be run out beyond a number of millions of years which can certainly be told on the fingers of both hands, and probably on the fingers of one.—*Fortnightly Review*.

WALT WHITMAN.

I.

BY THEODORE WATTS.

It is vexing that the remarkable man Walt Whitman, who died on the 27th, ult., never came to London.

"The good American" before he dies comes to London—the point where beats the heart of the great race to which he belongs. Until he has done this he is as thorough a provincial as though his days had languished in the primeval wilds of Oxford, of Cambridge, or of Edinburgh. It is not because the writing man of London is superior to the writing man of New York or of Boston that his opinion is of value upon the pretensions of any American writer who is said to be as a personality new and original. It is because he lives at the heart of the English-speaking race, where he has been brought more or less into personal contact, not only with the great Englishmen of his time, but with men like Emerson, Longfellow, Nathaniel Hawthorne, Motley, Lowell, Charles Far-

rer Brown, in the past, and at the present day with people like Mr. Bret Harte; Mr. Edgar Fawcett, Mr. W. Winter, Mr. Aldrich, Mr. Stedman, Mrs. Chandler Moulton, Mr. Moncure Conway, and scores of others who season after season make one of the most important parts of the enjoyment of London life.

But there were quite special reasons why it would have been fortunate had Walt Whitman been persuaded to visit London. For there is no doubt whatever that, whether or not endowed with any kind of literary genius—poetic genius no one now dreams of crediting him with—he was very richly endowed with the genius of a magnetic personality, which enables a few rare individuals throughout the entire animal kingdom to create a following by means of sheer unintelligibility and muddle-headedness. Nature, the great mother, who seems so frank, so simple-minded,

and so lavish, is in fact the craftiest of all schemers. When it comes to economies no stepmother can be more calculating than she who endows men, as she endows all the other gregarious animals, with two different kinds of personality, the dominant and the servient, and does so with ulterior views far beyond the ken of the animals themselves. The power in the dominant temperament is quite instinctive and quite inexplicable; it is not in any logical sense inherited, and yet is never learned and never taught. Nor with superior strength either of mind or of body has it much to do. It is not because the leader of the flock of wild geese is a wiser goose than the others that he flies and cackles at the apex of the wedge. On the contrary, seeing how clever he is in leading them where they must inevitably come within the range of the sportsman's gun, he is very likely the most thoroughly equipped fool even in a flock of geese. But the others, learning from the tone of his cackle that he feels he ought to be dominant, range themselves immediately and instinctively behind his tail. So with

The many-wintered crow that leads the clanging rookery home.

It is not his many winters that set him at the head, for the feeble old bird whose shadow on the grass flutters fifty yards behind the rest is very likely, although he does not know it, the guiding crow's grandfather—he is there because something in his caw has informed the others that he thinks he ought to lead. This is called in "The Nature-Worshipper's Dictionary," now in type, "Nature's Bunsbyism." For here is exhibited that crafty scheming of Nature toward ulterior ends at which I am glancing. It is the want of that self-reliance characteristic of the other species which makes gregarious animals gregarious. Hence the mass of them are of the servient temper. But especially is this so with man, where Nature's Bunsbyism is seen at its best.

The finest definition of human happiness ever made was that embodied in the dying words of the good and great Dr. Hammond—"uniform obedience," exercising the instinct for obeying rather than the instinct for directing. This explains the famous words, "Nescis, mi fili, quantilla prudentia homines regantur." It explains the existence of the American legis-

lature; it explains the existence of that large and noble monument of Barry's architectural genius at the foot of Westminster Bridge; it explains why many thousands of voting Captain Cuttles will next year take infinite trouble to send a few hundred Jack Bunsbys to Parliament. In a word, it expounds the enigma that vexed the philosopher before even Lokman: Why are the addle-pates of the world the rulers of the world?

When, not so very many years ago, I was attacked, perhaps I might say abused, by the young gentlemen—bards for the most part—who "did" the literature in a little group of newspapers, on the ground that I was a "reactionary poet"—that is to say an anti-Whitmanite who had corrupted a certain set of great poets, including Dante Rossetti, inoculating them with my reactionary views—the gravest charge against me was that I had christened Whitman the "Jack Bunsby of Parnassus." Well, there is no doubt that I did give him that name, but not as a poet, as a naturalist: now that he is dead, and now that I know what a fine and manly soul it was that expressed itself with so much incoherence, I regret that I should ever have given him such a name.

And here is my excuse, such as it is. When I was a boy far away in the country, one of the uncomfortable results of my having obtained the reputation of being a student was that whosoever in that neighborhood, whether a young lady fresh from the genteel seminary or an ambitious yokel from the night school, felt the impulse to write verses, brought his or her efforts to me for examination and approval, and these were always written in metres where the prose sentences were broken up into lines of unequal length, each line beginning with a capital.

Evidently each writer had instinctively felt that between prose and verse there was a deeper distinction than was marked by the presence or absence of rhyme. Each one felt, though of course without putting it into words or even into thoughts, that the logical basis required for every prose sentence could in a considerable degree be dispensed with if the matter were expressed in a metrical form, and, as to find rhymes was impossible, they set to work to imitate, as they thought, the arrangements of the metrical portions of the Bible. And as all these bards expected

me not only to scan their verses, but to find a meaning in them which they did not attempt to find for themselves, I naturally called it Bunsby poetry. And it chanced once in Rossetti's studio that the late W. Bell Scott (who always claimed the honor of having invented Whitman for England) was talking with his admirable incisiveness about the "Leaves of Grass." I knew, of course, that not only he, but other men of genius and intellect—such as my dear friend W. M. Rossetti, for instance—had, in their noble yearning to see a promised land beyond Philistia, arrived at the conclusion that whatever came from America had upon it the cachet of heaven. But I felt sure that Dante Rossetti, who was absolutely free from political or social bias—I might almost have said free from political or social sympathy—*could* not accept Whitman as a poet. Moreover, I saw by an uncomfortable twitching of the eye as he looked up at me over his spectacles that he wished the conversation would take another turn. And when I said, "Do you also believe in the Jack Bunsby of Parnassus?" he who, although not a good Dickensian, was a lover of Jack Bunsby, gave vent to that splendid guffaw of his, and rolled upon the sofa in an ecstasy of delight. For, indeed, had Dickens set out to satirize the attitude of Whitman toward his admirers, he could never have invented any situations equal to those between the captain and his idol. All the intellect was in the brain of the captain, while all the fog was in the head of the idol; but then Nature made the captain servient and Bunsby dominant. It was for Bunsby to deliver oracles, not to understand them—that was the captain's proud function. In intelligence and in knowledge it would have taken several such men as Whitman to make one Bell Scott or William Rossetti; in poetic gift it would take a dozen such as he to make a poet equal to one or two I could name who stand in the forefront of the English and American Captain Cuttles.

"But there is no such thing as unbiassed opinion," said John Foster. Had a writer so affected in attitude, so indecent in expression, and so nebulous in thought, been an Englishman, he would have received as scant recognition here as he got from his own countrymen, most of whom refused to take, save as an insult, Emerson's preposterous saying that "Leaves of

Grass" was "the most extraordinary piece of wit and wisdom that America has yet contributed." That Whitman had the temperament of the poetical thinker no one, I suppose, would deny. Whenever he writes about Death, and in one or two lyrics about Lincoln, he is fine—sometimes he is almost sublime; and it is by no means sure that if he could have been compelled to give his attention not merely to English metres, but to English grammar and English common sense, he might not have left something notable behind him. In every intellectual being there are two forces at work: what we call temperament and what we call intelligence. It is, indeed, a singular thing, and worthy of being well thought out, that there is many a man with a philosophical temperament to whom the "shows of things" present themselves in their true unreality, but who nevertheless lacks the intellectual grip that enables the philosopher to see behind these shows; while, on the other hand, there is many another man, whose intellect and whose knowledge are of the first order, who nevertheless accepts the "shows of things" with a kind of bovine uninquiring acceptance. No one will deny, for instance, that intellectually Ben Jonson was greater than "Christopher Sly," yet in virtue of a single exclamation, "Let the world slide," Christopher has proclaimed himself a greater philosopher by temperament than Ben. So it is in regard to poetry: there are people with a very considerable gift of poetic workmanship in whom the poetic temperament is almost non-existent; and, on the other hand, there are people with a very considerable endowment of the poetic temperament who find it difficult, and even impossible, to master the simplest technicalities of art.

A poet may, and perhaps some day will, invent a new metrical form, independent not only of rhyme, but also of the caesural law which governs our blank verse. Music has experienced a new development, metre may perhaps do the same; but then the metrist must be one who has all the present metrical harmonies at his command. Bible rhythm might, in the hands of a superb master, become the basis of a grand new movement. But perhaps a knowledge of Hebraic rhythms is requisite for this. "The Bible," says Selden, "is rather translated into English words than into English phrase. The Hebraisms are kept,

and the phrase of that language is kept." Whitman was the last man to be able to make what Biblical scholars call the "sense-rhythm" meet the rhythm of any modern metrical structure and strengthen it. And Dante's art of "using the sieve" and selecting "noble words," he held in ignorant contempt. It has been said of him, and even by his friends, that he printed two anonymous articles on his own "*Leaves of Grass*," and reprinted them as the opinions of independent reviewers in what he called "*Leaves Droppings*" in the second edition of that work—in one of which, in comparing himself with Lord Tennyson, "the bard of music and of the aristocracy," he asks, "What is to become of the rhymesters, melancholy and swallow-tailed, and of all the confectioners and upholsterers of verse, if the tan-faced man here advancing typifies, indeed, the natural and proper bard?" A man who could sneer at a poet because he was the bard of music need never be criticised as a poet—indeed, cannot be so criticised save by doing him a great injustice.

Of course, if Whitman really has a message for humanity we will listen to him in whatsoever jargon he may deliver it. But what is his message? No Captain Cuttle has ever formulated this. At one moment his teaching is that of an intense individualism, at the next that of a kind of democratic Socialism, at the next it is Carlylean. It is extremely easy to disguise puzzle-headedness the moment that you pass away from prose statement. As to benevolence, comradeship, some of the countrymen of Shakespeare, of Sterne, of Burns, of Ebenezer Elliott, of Dickens, seem really to think that Whitman invented these qualities, or, at least, gave first expression to them. As to his amazing indecency, that may be forgiven. It has done no harm. It is merely the attempt of a journalist to play the "tan-faced man"—to play "the noble savage" by fouling with excrement the doorstep of Civilization. In England, to be sure, he would have been promptly "run in."—*Athenæum*.

II.

BY T. W. R.

For some weeks past we have learned from occasional telegrams—few and meagre they were—that the greatest American

was dying in his quiet home at Camden. And now the news has come that Walt Whitman, full of years and, as we gladly know, not unattended by the blessings that years should bring, "as honor, love, obedience, troops of friends," has indeed passed away. Many and many hearts in this country and others will feel the loss with a pang like that of a personal bereavement. But at worst no bitterness or indignation will be mingled with our sorrow, as it must have been if this event had happened, when it seemed most likely to happen, some fifteen years ago. At that time Whitman, poor, in debt, paralyzed, and all but given over by the doctors, was bringing out his edition of 1876—the two volumes known as *Leaves of Grass*, and *Two Rivulets*, in which his plan first came in sight of a satisfactory rounding and completion. News of his condition and circumstances reached England, and immediately steps were taken to give him both the help and the good cheer he needed, by securing a wide circulation for his new edition. "Many paid double and treble price," he writes, in that serene and beautiful valedictory book in which he has just taken leave of life and poetry.* "Many sent kind and eulogistic letters. Those blessed gales from the British Islands probably (certainly) saved me." Then he notes down some sixty names, some of them, like Tennyson's and Ruskin's, known wherever the English language is spoken, some of which the world has never heard: all associated here in a loving record of service well done and well remembered. "That emotional, audacious, open-handed, friendly-mouthed, just opportune British action plucked me like a brand from the burning, and gave me life again to finish my book, since about completed. I do not forget it, and shall not; and if I ever have a biographer, I charge him to put it in the narrative. I have had the noblest friends and backers in America . . . and yet, perhaps the tenderest and gratefullest breath of my heart has gone, and ever goes, over the sea-gales across the big pond."

In all probability this action of his English friends added fifteen years to Whitman's life; and in those years he saw the almost unbroken array of hostile or contemptuous faces, sole audience hitherto for his chants of love and joy, take an as-

* *Good-bye, my Fancy.* (Whitman's books are sold in London at Putnam's Sons, Bedford Street.)

pect of friendship and admiration. He saw the circle of his readers steadily widening and extending into new lands. He saw his full success and recognition not indeed accomplished—far from that—but at least well on the way toward accomplishment. At any time, we cannot doubt, he would have confronted death with faith and serenity. But his friends may well be glad to think that he may not be added to the list of those “mighty poets in their misery dead” who perished in a midnight sea of calamity and gloom.

The outward facts of Whitman's life are likely to be sufficiently well known to most readers of the *Academy*. I shall therefore only briefly summarize them here. He was born in 1819, of substantial farming people in Long Island (Pau-manok). His education was of an ordinary character—no university culture. But he had a natural love of what is great in literature; and the Bible, Homer, and Shakespeare were the great literary influences in his life. Like many Americans, he tried his hand at a variety of occupations—now a carpenter, then a schoolmaster, finally a journalist, in which capacity he wrote tales, sketches, articles, and now and then poems, in no way better than journey work of this kind usually is. He had not yet delivered himself from literary forms which, if not false and dead in themselves, were certainly so to him, and in which he could achieve nothing. It was “early in the fifties,” writes Dr. Bucke,* that *Leaves of Grass* “began to take a sort of unconscious shape in his mind.” It was at this time that in his little room in Brooklyn appeared the placard printed by his own hand, “Make the Work.” And truly he made the work! such a work as no contemporary has ever attempted to make—that heroic effort to cope with, comprehend, and express the whole life of a modern man, living, a democrat, in the midst of a great democratic society. The first edition of *Leaves of Grass*, consisting of twelve poems (including the “Song of Myself”), was published in 1855. From that germ grew, not by mere addition, but by an organic process of growth or expansion, the thick quarto volume of 1888.

The American Civil War was the great

* Dr. Bucke's *Life* contains, I think, everything that is worth knowing about Whitman, and the history of his books, up to 1883.

turning-point in his life. The proof it afforded that the American people were capable of waging a desperate struggle and making enormous sacrifices for an ideal purpose, filled him with a new faith in the destinies of his country. And this faith was confirmed by what one may call a personal knowledge of the American people, gained where it lay, in the grip of suffering and death, in the wards of the great army hospitals. Here Whitman served for three years as a volunteer nurse, supporting himself by letters to New York journals, spending the most of his earnings in relieving the sufferings of the wounded who were his care, and living, that he might have more to spend, with the most rigid self-denial. It was, indeed, little that he had to give them in money or in things that money buys. But he gave them something better; and the tranquil strength and benignity of his nature brought with his very presence an atmosphere of peace and hope. An eyewitness of his labors wrote in the New York *Herald*, in 1876, a touching account of what he saw:

“Never shall I forget one night when I accompanied him on his rounds through a hospital, filled with those wounded young Americans whose heroism he has sung in deathless numbers. There were three rows of cots, and each cot bore its man. When he appeared, in passing along, there was a smile of affection and welcome on every face, however wan, and his presence seemed to light up the place as it might be lit by the presence of the Son of Love. From cot to cot they called him, often in tremulous tones or in whispers; they embraced him, they touched his hand, they gazed at him. To one he gave a few words of cheer, for another he wrote a letter home, to others he gave an orange, a few comfits, a cigar, a pipe and tobacco, a sheet of paper or a postage stamp, all of which and many other things were in his capacious haversack. From another he would receive a dying message for mother, wife, or sweetheart; for another he would promise to go on an errand; to another, some special friend, very low, he would give a manly farewell kiss. He did the things for them which no nurse or doctor could do, and he seemed to leave a benediction at every cot as he passed along. The lights had gleamed for hours in the hospital that night before he left it; and as he took his way toward the door, you could hear the voice of many a stricken hero calling ‘Walt, Walt, Walt, come again! come again!’”

It may be observed that this work in the army hospitals was no premeditated purpose with Walt Whitman. He had gone to the seat of war simply to look

after his wounded brother. The care bestowed on him extended itself naturally to others who were in the same plight; and before he knew it, Whitman found himself possessed of a "mission," which engaged all his energy and ardor. His services from beginning to end were given gratuitously, but at the close of the war they gained him a small post in a Government office. From this, however, he was ere long dismissed by Mr. Secretary Harlan, on the ground that he had written a book which that official considered unfit for publication. Another post in the office of the Attorney-General was at once procured for him; and this he held till 1873, when he was struck down by an attack of paralysis, traceable primarily to the nervous tension, fatigue and privations of the war period. His magnificent health was now completely and permanently shattered; and as his books had brought him nothing but calumny and persecution, his very means of livelihood, if death did not at once solve the problem of existence for him seemed uncertain. It was the darkest hour of his life, but it was also, as he has told us, the dawn of a better day. It was now that he received from England that recognition and help of which he speaks so warmly; and thenceforth, though with occasional reverses, he began to be appreciated and understood as he deserved. Some twelve years ago, as I remember, it was common to meet with educated people who considered it almost an affront if one ventured to invite their admiration for Walt Whitman. But now, thanks very largely to the valiant advocacy of Mr. W. M. Rossetti, Professor Dowden, Mr. Robert Buchanan, and others, Whitman is becoming a classic in England. A German "*Grashalme*" has been received with warm welcome by the most authoritative critical voices of the Fatherland. He is known in France, in Denmark, in Russia, in Italy—but unhappily it is still rare to find an American, at least in Europe, who had ever heard of Whitman until he came there, and it was always possible for American magazines to reject his contributions without exposing themselves to ridicule. *Harper's Monthly* lately declined the beautiful poem, entitled "*The Sunset Breeze*" (*Good-bye, my Fancy*, p. 12), on the ground that it was merely an "improvisation!"

Since 1876 he has lived on quietly at

Camden, with an occasional tour to Canada or the Western States. He has put forth edition after edition of his works, each with revisions and augmentations. The last dates from this very year, and includes the poems in his valedictory book, *Good-bye, my Fancy*. He has had loving friends about him to the last; and one in particular, Mr. Horace Traubel, has done services for him which well deserve to be had in remembrance by all who would gladly have served him themselves.

Of the peculiar form in which Walt Whitman has chosen to express himself it is not possible to say much that is profitable. To defend it is impossible—to attack it looks like a sort of *ignoratio elenchi*. A reasonable man does not criticise Nature; an artist does not copy Nature; it has been given to one man to reproduce Nature. Whitman's writings have the form which the creative instinct supplies for itself from within—little or none of that which the decorative instinct imposes from without. I would rather he had both; the greatest art is a union of the two. Moreover, without the latter, any flagging or failure of power is conspicuously apparent; and of course Whitman has his weak places. "I have probably," he observes with justice, "not been enough afraid of careless touches, from the first—and am not now—nor of parrot-like repetitions—nor platitudes and the commonplace." But our business at present is not with Whitman's defects. The moment that his influence and example are used, as they very well may be, to thwart or constrain any other native poetic growth, then will be the time to break down that constraint, and assuredly those who have absorbed most of Whitman's spirit will do this most eagerly and thoroughly. But in the meantime our labor must be to make him known and loved wherever literature is loved, a work by this time prosperously inaugurated. Let us fix our eyes then on the perennially great and satisfying things in his poetry, its native power, its dauntless sincerity and faithfulness of aim, the immense uplifting tide of elemental life that streams through it. Sometimes, as the strong irregular lines roll on, the reader feels as one who watches the sea on a day of wind and sun: the vast array of swaying, onpressing waves, the endless flash and motion, the flying, stinging spray, the salt

smell in the breeze with all its wild invitation to freedom and adventure :

" Allons ! whoever you are, come travel with me !

Travelling with me you find what never tires.

" The earth never tires,
The earth is rude, silent, incomprehensible
at first, Nature is rude and incomprehensible at first,
Be not discouraged, keep on, there are divine things well envelop'd,
I swear to you there are divine things more beautiful than words can tell.

" Allons ! we must not stop here,
However sweet these laid-up stores, however convenient this dwelling, we cannot remain here,
However sheltered this port and however calm these waters, we must not anchor here ;
However welcome the hospitality that surrounds us, we are permitted to receive it but a little while.

" Allons ! the inducements shall be greater,
We will sail pathless and wild seas,
We will go where winds blow, waves dash, and the Yankee clipper speeds by under full sail."

Yet, after all, this summons to a robust life of action and daring, to the bracing strife with realities, is far from exhausting Whitman's meaning and purpose. There is an Oriental mystic in this Yankee pioneer :

" Not you alone, proud truths of the world,
Not you alone, ye facts of modern science,
But myths and fables of old—Asia's, Africa's fables,
The far-darting beams of the spirit, the unloos'd dreams,
The deep-diving bibles and legends,
The daring plots of the poets, the elder religions ;
O you temples fairer than lilies, pour'd over by the rising sun !
O you fables spurning the known, eluding the hold of the known, mounting to heaven !
You lofty and dazzling towers, pinnacled, red as roses, burnish'd with gold !
Towers of fables immortal fashion'd from mortal dreams !
You, too, I welcome and fully the same as the rest !
You, too, with joy I sing."

Joy, acceptance, faith, are certainly the dominant notes in Whitman's poetry. Yet his was no shallow optimism which averts its gaze " from half of human fate." There are utterances in him of profound melancholy and dismay—utterances in which we seem to hear the wail of all the

mournful voices of the world. There is one poem in particular—a poem full of the pregnant creative touches which Whitman has so marvellously at command—in which the sight of the long trails and windrows of *débris* cast up by the tide on the coast of Paumanok brings home to him, with awful vividness, a sense of the insignificance of human things. Almost terrifying in their weirdness and awe are some passages of this extraordinary poem :—

" I, too, Paumanok,
I, too, have bubbled up, floated the measureless float, and been wash'd on your shores ;
I, too, am a trail of drift and *débris* ;
I, too, leave little wrecks upon you, you fish-shaped island.

* * * * *

Me and mine, loose windrows, little corpses,
Froth, snowy white, and bubbles,
(See, from my dead lips the ooze exuding at last ;

See, the prismatic colors glistening and rolling)—

Tufts of straw, sands, fragments—
Buoy'd hither from many moods, one contradicting another ;

From the storm, the long calm, the darkness, the swell—

Musing, pondering, a breath, a briny tear,
a dab of liquid or soil,

Up just as much out of fathomless workings fermented and thrown,

A limp blossom or two—torn, just as much over waves floating, drifting at random ;

Just as much for us that sobbing dirge of Nature,

Just as much whence we come that blare of the cloud trumpets,

We, capricious, brought hither we know not whence, spread out before you,

You up there walking or sitting ;

Whoever you are, we, too, lie in drifts at your feet."

In one of Wordsworth's prose writings there is a striking passage on the essential characteristics of the poet.

" He is a man speaking to men ; a man, it is true, endowed with more lively sensibility, more enthusiasm and tenderness, who has a greater knowledge of human nature and a more comprehensive soul than are supposed to be common among mankind ; a man pleased with his own passions and volitions, and who rejoices more than other men in the spirit of life that is within him, delighting to contemplate similar volitions and passions as manifested in the goings on of the universe, and habitually impelled to create them when he does not find them."

Perhaps this definition cannot be universally applied. Leopardi cannot be said to have rejoiced more than other men, or in-

deed to have rejoiced at all, in the spirit of life that was within him ; yet Leopardi was a great poet. But the description might have been written for Walt Whitman, of whom indeed Wordsworth was essentially a precursor. Wordsworth and Whitman are both in love with the nearest, commonest, simplest realities, both love them largely for what they see behind them, both are philosophic thinkers in whom thought and passion are inseparably united, for both a true and vital perception of the natural world includes at least the elements of religion. With Wordsworth we recognize "a grandeur in the beatings of the heart." Whitman adds, "And why not in every other organ and function too?" I do not see how the true Wordsworthian can avoid asking himself that question, that most momentous and pregnant question. I do not see how any one to whom that line of Wordsworth is not a mere rhetorical flourish can help applauding at least the aim of Whitman in those parts of his poetic work which have exposed him to particular reprobation and misunderstanding. Wordsworth and Whitman in fact are both representatives of the democratic spirit in literature ; but Whitman with a far greater range of sympathy, with far greater daring and completeness. Indeed, it might almost be said that democracy in literature dates from him, with such unexampled thoroughness and ingrained conviction does he carry this spirit into everything that he handles. If he writes of a great man, a Lincoln, Sherman, Grant, it is because that heroic figure stands for millions of other men, for great human causes, for mankind. He venerates the religions of the earth, but does not see what there can be more wonderful and sacred than a man : "it is not they who give the life, it is you who give the life." He honors and glorifies virtue, but regards vice rather as its antipodes than its foe, distinct yet inseparable from it, and uniting with it to form one infinite existence whose nature our faculties are inadequate to represent or express. He will have nothing scorned or rejected. "His thoughts are the hymns of the praise of things," the common things and the common men and women of the earth. And yet he is as far as possible from any

base contentment with what is lower than the highest or cheaper than the rarest. If he loves the common, it is not because it is common, but because it is, in reality, to the true vision, as miraculous and divine as anything else can be ; as glorious in destiny, as capable of reflecting light from that unseen central Sun which vivifies and controls the universe.

But enough of this. The best of Whitman is not what can be stated, proved, reasoned about ; it is what comes to us like the tone of a voice, the glance of an eye, things that are nothing and mean everything. It is not with a book that we have to do, but a man :

ταῦτ' οὐ πῖναξιν ἔστιν ἐγγεγραμμένα,
οὐδ' ἐν πτυχαῖς βιβλῶν κατεσφραγισμένα·
σαφὴ δ' ἀκούεις ἐξ ἑλευθεροστόμου
γλώσσης.

Generations will pass and bring us an American poetry which is master of a more lordly and perfect art, but not easily again the friend and comrade whose very presence made itself felt in the pages we read, and had such magic to fortify and cheer. Well, indeed, might we cry as they cried to him from the hospital wards, "Walt, Walt, Walt, come again !" Yet, though he leaves us, and forever, there is something in the death of such a man which is not altogether dark and lamentable. For fifteen years he lived in the overhanging shadow of death, and never did he write with such lofty serenity and sweetness as under the deep, star-sown heaven revealed to him in the partial eclipse of life and health. And in his last book we seem to see him pass away to unknown divine regions, like some colossal departing figure, some earth-wandering Titan, lover and succorer of mankind, who turns on the horizon's rim to wave us a last farewell. Courage and hope are in that message ; and we think of the words with which he closes the long chant of *Salut au Monde*, with their sudden mystic grandeur, their indefinable meaning and promise :

"Toward all
I raise high the perpendicular hand, I make
the signal,
To remain after me in sight forever
For all the haunts and homes of men."

—Academy.

REMINISCENCES OF THOMAS CARLYLE.

BY SIR CHARLES GAVAN DUFFY.

I REMAINED a couple of years in Europe,* and when in London went to Cheyne Row constantly. On Sunday I generally walked two or three hours in the parks with Carlyle; he talked as frankly as of old, but I was closely engaged and had seldom leisure to make notes. A few exceptional conversations, however, I have found in a diary in which I kept reminiscences of travel.

When I saw him first he thanked me for acting so promptly on his letters of introduction, and inquired if these sort of things were commonly of much use to emigrants. I said they were like French assignats, the emission was so excessive that no one any longer wished to touch them. It was easy to write a letter, but it was cruel to write it, if it raised hopes which could not be realized. And as of old there were forged assignats in circulation; a man brought me from New York a familiar and affectionate letter which I had reason in the end to believe he purchased, and it was from a person whose name I had never heard before. I was most provoked by introductions from men in Parliament and office who had patronage of their own. There was a case in the English newspapers a few years ago arising out of a complaint a schoolmistress made against a Minister of State, one of the most conspicuous men in Europe indeed, and shortly afterward the lady and her husband appeared in Melbourne and he called upon me with a couple of impressive introductions from important persons. I asked him if he were the plaintiff in such and such a case, and he said "Yes." I asked if the charges against Lord P—— were well founded. "Ah," he said, "that was a long story." "Well," I replied, "I must understand your long story very distinctly before I take these letters of introduction into consideration." I extracted from him by patient cross-examination that certain influential friends had advised him to drop the case, that the same generous patrons had sent him to Australia with a couple of hundred

pounds in his pocket, and armed with irresistible letters of recommendation. I was in doubt at the outset whether he was an honest man driven to emigrate by powerful enemies, a blackmailer who had made a false charge against an eminent statesman, or an injured man who had salved the wound to honor by a handful of money. He left me in no doubt upon the point, and I showed him to the door and threw his letters of introduction into the waste-paper basket.

Carlyle inquired who had sent the letters, and when he heard their names condemned them sharply. One of my correspondents in London afterward told me that when the septuagenarian (who had as little sense of moral diffidence as one of Congreve's fine gentlemen) was rallied by his colleagues on this unseemly adventure, he murmured gayly, "*Que voulez-vous ? Boys will be boys.*"

Carlyle told me an amusing story about the same eminent personage. There was a State dinner at his house including the cream of the official world. Every one present except the wife of the American Minister was familiar with a scandal which attributed to their host illegitimate relations with the wife of one of his colleagues, whom he married after her husband's death. Her son during the first marriage was brought in to dessert at the State dinner. When he approached the American lady she put her hand on the boy's head and looking affectionately at her host exclaimed, "Ah, my lord, no one need ask who is this young gentleman's papa!"

I spoke to him of Cobden, whose death I had heard of with the deepest regret, from the pilot who came on board our ship in the Channel, who was full of the tragic news. Yes, he said, a pack of idle shrieking creatures were going about crying out that the great Richard was dead, as if the world was coming to an end, which it was not at all, at least in that regard. Bright, he considered one of the foolishlest creatures he had ever heard of, clamoring about America and universal suffrage, as if there was any sensible man anywhere in the world who put the smallest confidence in that sort of thing nowa-

* The writer had just returned from a lengthy official residence in Australia.

days. Their free trade was the most intense nonsense that ever provoked human patience. The people of Australia were quite right to protect their industries and teach their young men trades in complete disregard of Parliamentary and platform palaver. No nation ever got manufactures in any other way.

I said it was not desirable to have a permanent population of diggers ready to fly from "rush" to rush, as new discoveries were made, but, if possible, a settled population engaged in all the ordinary pursuits of life; and Australians were willing to make a sacrifice to secure this end. They did right, he said, and I might lay this to heart, that of all the mad pursuits any people ever took up gold digging was the maddest and stupidest. If they got as much gold as would make a bridge from Australia to Europe it would not be worth a mealy potato to mankind.

The next time I saw him he told me that he had consented to be nominated Lord Rector of Edinburgh University on condition that no inaugural address should be required from him. His rival was Disraeli, who beat him before at Glasgow—being a person altogether more agreeable to the popular taste. Madame, who was present, assured me, however, that an address would be forthcoming in good time. He makes light of the affair, treating it as a bore, which perhaps, after all, it was better to endure patiently, since certain persons took an interest and had taken trouble in the business. Both he and she have a repressed but very natural and justifiable pride in it nevertheless.

Two days later I went over to Cheyne Row and found Madame going out to dine with Lady William Russell. I drove with her and had a very pleasant talk. She is frankly proud of the Lord Rectorship intended for Carlyle, and declares that he must deliver an address. She told with admirable humor a story of her going to inquire for a lost dog, to the shop of one of the gentry whose profession it is to find and lose dogs. When she entered she meant to ask him if he sold dogs, but her mind was so possessed by the actual facts of the case, that she blurted out, "Pray, sir, do you steal dogs?" Returned to Cheyne Row, where two Southern Americans, Colonel Latrobe and Mr. Thomson, were with Carlyle. They were evidently delighted with Carlyle's pro-slavery opin-

ions. He insists that the South cannot be ruled on New England principles, and that toward any solution of the difficulty it would be indispensable to return to some modification of slave-holding.

I must mention a couple of incidents at this period which will not surprise those who knew Carlyle, but are hard to reconcile with the new theory of his domineering disposition and impatience of contradiction. In fact, good-humored and good-natured dissent were never accepted with more equanimity and cordiality by any man, and if it bore a little hard on himself or his opinions, it had not the worse reception for that.

One Sunday walking to Battersea Park with two or three friends, one of whom since became a judge and another was an eminent man of letters, we came on a street-preacher haranguing a mob at the top of his voice: "Will you open your ears to the word of God, my brethren?" he cried: "Do you accept this message which I bring you from the fountain of living truth?" "Not altogether, my friend, if you insist upon knowing," Carlyle whispered with comical emphasis when we had passed the preacher. "And why not?" asked one of his friends. "You reject him with scorn, but what he looks to you is precisely what the first Puritan looked to Laud or Strafford—an ignorant fanatic dogmatizing on questions which he did not understand."

One evening he was declaiming against Oxford converts, a theme which he knew I disliked, for Dr. Newman was an honored friend. When he had finished I told him that a comrade of mine was fond of saying that Carlyle's contempt for Newman suggested Satan disparaging the archangel Michael. "Why, sir, Michael, Satan would probably say, is a poor creature; he has never seen the world, but dozed away life in unquestioning service and submission. Michael, if one will consider it well, has the intellect of a cherub, a cherub, you will please to understand, docked at the shoulders, with nothing left but a bullet head to construct little bits of sermons and syllogisms."

Carlyle laughed and said he would have to insist in the end on my naming this anonymous critic who was forever turning up as counsel for the other side. He manifestly suspected that I myself was the unknown critic, but this pleasant parody

on Carlyle's method had been actually improvised over the dinner table in these identical terms by the late Judge O'Hagan.

CURRENT LITERATURE.

I inquired shortly after seeing him whether he would follow Frederick by any other historical study. No, he said, he would probably write no more books; writing books was a task to which a man could not be properly encouraged in these times. Modern literature was all purposeless and distracted, and led he knew not where. Its professors were on the wrong path just now, and he believed the world would soon discover that some practical work done was worth innumerable "Oliver Twists" and "Harry Lorrequers," and any amount of other ingenious dancing on the slack rope. The journalism which called itself critical had grown altogether Gallic, and exulted over the windy platitudes of Lamartine and the erotics of George Sand.

Mrs. Carlyle, who was present, said we had small right to throw the first stone at George Sand, though she was caught in the same predicament as the woman of old, if we considered what sort of literary ladies might be found in London at present. When one was first told that the strong woman of the *Westminster Review* had gone off with a man whom we all knew, it was as startling an announcement as if one heard that a woman of your acquaintance had gone off with the strong man at Astley's; but that the partners had set up as moralists was a graver surprise. To renounce George Sand as a teacher of morals was right enough, but it was scarcely consistent with making so much of our own George in that capacity. A marvellous teacher of morals, and still more marvellous in the other character, for which nature had not provided her with the outfit supposed to be essential.

The gallant, I said, was as badly equipped for an Adonis, and conqueror of hearts. Yes, Carlyle replied, he was certainly the ugliest little fellow you could anywhere meet, but he was lively and pleasant. In this final adventure it must be admitted he had escaped from worse, and might even be said to have ranged himself. He had originally married a bright little woman, daughter of Swinfin Jervis, a Welsh member; but every one

knew how that adventure had turned out. Miss Evans advised him to quit a household which had broken bounds in every direction. His proceeding was not to be applauded, but it could scarcely be said that he had gone from bad to worse.

A DISPUTE.

In all our intercourse for more than a generation I had only one quarrel with Carlyle, which occurred about this time, and I wish to record it because, in my opinion, he behaved generously and even magnanimously. Commenting on some transaction of the day, I spoke with indignation of the treatment of Ireland by her stronger sister. Carlyle replied that if he must say the whole truth it was his opinion that Ireland had brought all her misfortunes on herself. She had committed a great sin in refusing and resisting the Reformation. In England, and especially in Scotland, certain men who had grown altogether intolerant of the condition of the world arose and swore that this thing should not continue though the earth and the devil united to uphold it, and their vehement protest was heard by the whole universe, and whatever had been done for human liberty from that time forth, in the English Commonwealth, in the French Revolution, and the like, was the product of this protest.

It was a great sin for nations to darken their eyes against light like this, and Ireland, which had persistently done so, was punished accordingly. It was hard to say how far England was blamable in trying by trenchant laws to compel her into the right course, till in latter times it was found the attempt was wholly useless, and then properly given up. He found, and any one might see who looked into the matter a little, that countries had prospered or fallen into helpless ruin in exact proportion as they had helped or resisted this message. The most peaceful, hopeful nations in the world just now were the descendants of the men who had said "Away with all your trash; we will believe in none of it; we scorn your threats of damnation; on the whole we prefer going down to hell with a true story in our mouths to gaining heaven by any holy legerdemain." Ireland refused to believe and must take the consequences, one of which, he would venture to point out, was

a population preternaturally ignorant and lazy.

I was very angry, and I replied vehemently, that the upshot of his homily was that Ireland was rightly trampled upon, and plundered for three centuries, for not believing in the Thirty-nine Articles; but did he believe in a tittle of them himself? If he did believe them, what was the meaning of his exhortations to get rid of Hebrew old clothes, and put off Hebrew spectacles? If he did not believe them, it seemed to me that he might, on his own showing, be trampled upon, and robbed as properly as Ireland for rejecting what he called the manifest truth. Queen Elizabeth, or her father, or any of the Englishmen or Scotchmen who rose for the deliverance of the world, and so forth, would have made as short work of him as they did of Popish recusants. Ireland was ignorant he said, but did he take the trouble of considering that for three generations to seek education was an offence strictly prohibited and punished by law. Down to the time of the Reform Act, and the coming into power of the Reformers, the only education tendered to the Irish people was mixed with the soot of hypocrisy and profanation. When I was a boy, in search of education, there was not in a whole province, where the successors of these English and Scotch prophets had had their own way, a single school for Catholic boys above the condition of a Poor School. My guardian had to determine whether I should do without education, or seek it in a Protestant school where I was regarded as an intruder; not an agreeable experiment in the province of Ulster I could assure him. This was what I, for my part, owed to these missionaries of light and civilization. The Irish people were lazy, he said, taking no account of the fact that the fruits of their labor were not protected by law, but left a prey to their landlords, who plundered them without shame or mercy. Peasants were not industrious, under such conditions, nor would philosophers for that matter I fancied. If the people of Ireland found the doctrines of the Reformation incredible three hundred years ago, why were they not as well entitled to reject them then as he was to reject them to day? In my opinion, they were better entitled. A nation which had been the school of the West, a people who had sent missionaries

throughout Europe to win barbarous races to Christianity, who interpreted in its obvious sense God's promise to be always with his Church, suddenly heard that a king of unbridled and unlawful passions undertook to modify the laws of God for his own convenience, and that his Ministers and courtiers were bribed into acquiescence by the plunder of monasteries and churches: what wonder that they declared that they would die rather than be partners in such a transaction. It might be worth remembering that the pretensions of Anna Boleyn's husband, to found a new religion, seemed as absurd and profane to these Irishmen, as the similar pretensions of Joe Smith seemed to all of us at present. After all they had endured the people of Ireland might compare with any in the world for the only virtues they were permitted to cultivate, piety, chastity, simplicity, hospitality to the stranger, fidelity to friends, and the magnanimity of self-sacrifice for truth and justice. When we were touring in Ireland together twenty years before with the phenomena under our eyes, he himself declared that after a trial of three centuries, there was more vitality in Catholicism than in this saving light to which the people had blinded their eyes.

Mrs. Carlyle and John Forster, who were present, looked at each other in consternation as if a catastrophe was imminent; but Carlyle replied placidly, "That there was no great life, he apprehended, in either of these systems at present; men looked to something quite different to that for their guidance just now."

I could not refrain from returning to the subject. Countries which had refused to relinquish their faith were less prosperous, he insisted, than those who placidly followed the royal Reformers in Germany and England. Perhaps they were; but worldly prosperity was the last test I expected to hear him apply to the merits of a people. If this was to be a test, the Jews left the Reformers a long way in the rear.

When nations were habitually peaceful and prosperous, he replied, it might be inferred that they dealt honestly with the rest of mankind, for this was the necessary basis of any prosperity that was not altogether ephemeral, and, as conduct was the fruit of conviction, it might be further inferred, with perfect safety, that they had

had honest teaching, which was the manifest fact in the cases he specified.

I was much heated, and I took myself off as soon as I could discreetly do so. The same evening, I met Carlyle at dinner at John Forster's, I sat beside him, and had a pleasant talk, and neither then, nor at any future time, did he resent my brusque criticism by the slightest sign of displeasure. This is a fact, I think, which a generous reader will recognize to be altogether incompatible with the recent estimate of Carlyle as a man of impatient temper, and arrogant overbearing self-will.

MODERN ART.

As we passed one day the Albert Memorial going to Hyde Park, he spoke of the chaotic condition of art like all the other intellectual pursuits. England had not been fortunate in expressing her ideas in this region more than any other, quite otherwise than fortunate indeed. Some one had compared the memorial to a wedding-cake with a gilded marionette mounted on it; the effect produced was insignificant or altogether grotesque. The huge edifice called the new Palace of Westminster was not insignificant or grotesque, but it wanted the unity of design which is apt to impress one in a work which is a single birth from one competent mind. When Thackeray saw the river front he said he saw no reason why it stopped: it ended nowhere, and might just as well have gone on to Chelsea.

I asked who was responsible for the disappointing effect of the Albert Memorial. The person to be contented he said was the Queen. She lived in such an atmosphere of courtly exaggeration that she ceased to comprehend the true relation and proportion of things. Hence the tremendous outcry over Prince Albert, who was in no respect a very remarkable man. He had had a certain practical German sense in him too, which prevented him from running counter to the feelings of the English people, but that was all. He was very ill-liked among the aristocracy who came into personal relations with him. Queen Victoria had a preternaturally good time of it with the English people; owing a good deal to reaction from the hatred which George IV. had excited. Her son one might fear would pay the penalty in a stormy and perilous reign.

He gave no promise of being a man fit to perform the tremendous task appointed him to do, and indeed one looked in vain anywhere just now for the man who would lead England back to better ways than she had fallen into in our time.

Speaking of the relations of Ireland and Scotland, he said Scotia Major and Scotia Minor owed each other mutual services running back to the dawn of history. Scotland sent St. Patrick to civilize the western isle, and in good time the western isle sent Columbkille and other spiritual descendants of St. Patrick to teach the Scottish Celts their duties toward the Eternal Ruler and his laws.

I said it was disputed whether Scotland had sent St. Patrick to Ireland; a friend of mine, Mr. Cashel Hoey, had recently written a paper to demonstrate that St. Patrick was a Frenchman.

A Frenchman! he echoed; what strain of human perversity could induce an Irishman to desire to see it admitted that St. Patrick was a Frenchman? I laughed, and replied that the object probably was to relieve him from the reproach of being a Scotchman.

Well, he said, in a bantering tone, we might rely it was a controversy in no respect likely to arise about any other Irish personage, whether he was a Scotchman.

I was in Ireland when the news reached me of Mrs. Carlyle's sudden death. There was none of her sex outside my own immediate kith and kin whose loss would have touched me so nearly. I had known her for thirty years, always gracious and cheerful, even when physical pain or social troubles disturbed her tranquillity. She was perhaps easily troubled, for she was of the sensitive natures who expect more from life than it commonly yields. I verily believe her married life was as serene, sympathetic, and satisfying as those of ninety-five out of a hundred of the exceptionally endowed classes who constitute Society. The greatly gifted are rarely content; they anticipate and desire something beyond their experience, and find troubles where to robust natures there would be none. There was an incident connected with her death which has always struck me as peculiarly tragic. When the news reached her husband by telegram, fresh from his election as Rector of the University of Edinburgh, he retired into absolute privacy, but his letters were

brought to him next morning, and among them was one from her whom he knew to be dead, full of triumph at his success, and of lively speculations on the future.

When I saw Carlyle again some weeks after her funeral I found him composed, and at times even cheerful. His fresh mourning, a deep folding collar, and other puritanical abundance of snowy linen crowned with a head of silver gray, became him, and gave a stranger the impression of a noble and venerable old man. There is a photograph engraved with some of the memorials of him, which exhibits a man plunged in gloomy reverie, which did not resemble him even at that painful era, and is a caricature of the ordinary man. The photographer caught him doubtless in some fit of dyspepsia, and obtained quite an exceptional result. Before his great trouble, and even afterward, his manner was composed and cheerful, and in earlier times no one was readier to indulge in badinage and banter; a smile was much more familiar to his face than a frown or a cloud.

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My final return to Europe took place in 1880. I arrived in London in the spring, and immediately visited Carlyle. It was deeply touching to see the Titan who had never known languor or weakness suffering from the dilapidations of old age. His right hand was nearly useless, and had to be supported by the left when he lifted it by a painful effort to his mouth. His talk was subdued in tone, but otherwise unaltered. It takes a long time to die, he said, with his old smile, and a gleam of humor in his eye. He was wrapped in a frieze dressing-gown, and for the first time wore a cap; but, though he was feeble, his face had not lost its character of power or authority. He was well enough, he declared, except from the effects of decay, which were rarely beautiful to see. His chief trouble was to be so inordinately long in departing. It was sad to have survived early friends, and the power of work. Up to seventy he had lost none of his faculties, but when his hand failed that loss entailed others. He could not dictate with satisfaction. He found when he dictated the words were about three times as many as he would employ *propter manu*. Composition was in fact a process which a man was accustomed to perform in private, and which could not be effectually

performed in the presence of any person whatever. But he had written more than enough. If anybody wanted to know his opinions they were not concealed. There were still subjects on which he had perhaps something to say, and could say it, for though he was suffering an euthanasia from the gradual decay of the machine, the mind was probably much as it used to be; but he was content to consider his work at an end. In looking back over his turbid and obstructed life, he saw only too well that he had scattered much seed by the wayside, which was as good as lost, leaving no visible issue behind. If it was sound vitalized seed it might perhaps spring up and blossom after many years; if not in Heaven's name let it rot. But much had been left altogether unspoken, because there was no fit audience discernible as yet, and a man's thoughts, though struggling for utterance, refused to utter themselves to the empty air. The discipline of delay and impediment of which he had had considerable experience had not, on the whole, been a hostile element to labor in. In his later life he had some share of what men call prosperity; but, alas! it might well be doubted, if for him and for all men, trouble and trial were not a wholesomer condition than ease and prosperity.

After a time he seemed anxious to quit the subject of himself, and spoke of general topics. He asked me if I had visited the National Portrait Gallery, which he had done something to promote. He was confident it would prove a school of history for many who had no leisure for regular study.

I said I had visited it several times, and with much satisfaction. It would prove a school of history no doubt, but it was a school in which the pupils would get a good deal *disillusioné*. What would they say to Lord Bacon looking as jolly and *degagé* as the burlesque personage who used to be known in London as Chief Baron Nicholson, or Queen Elizabeth as flaunting and overdressed as a milliner's lay figure in the Borough, or, in our own times, Charles Lamb transformed into an Italian nobleman by Hazlitt, or Leigh Hunt into a Venetian bravo by Haydon? One of the modestest of English worthies might recall the Dutch ambassador's bail about a colleague whom he described as strutting about with his arms akimbo—

like a peacock. I told him, *à propos* of historical memorials, that I had been recently in Paris and visited Robespierre's house in the Rue St. Honore, where the iron stairs which he had so often trodden were still in existence in the gloomy and now dilapidated house where he resided in the heat of the Terror.

It was from such seemingly insignificant fragments, he said, that history had to reconstruct the past, or some resemblance of it more or less credible, an operation rarely performed with success.

He walked no longer as of old, but he appointed an early day for me to share his customary drive from three o'clock to five. He was accompanied by his niece,* whose care was now essential to his comfort. We drove to Streatham, through Clapham Common, and home by Battersea Park. Carlyle talked of things which the localities suggested. He spoke much as usual, except that his voice was feeble, and was so drowned by the noise of the road that I had to guess painfully at meanings which used to be delivered with such

clearness and vigor. I answered to what I was able to hear. He took occasional sips of brandy to keep up his strength, and solaced himself with a pipe.

I did not see him again before leaving London, and in the spring of the ensuing year the summons to his funeral, which followed me to the South of France, only reached me when the body was already on its way to Scotland. Time had brought to a close, not prematurely, but with many forewarnings, a friendship which nothing had disturbed, and which was one of the chief comforts of my life.

As these papers were published to present a more faithful portrait of Carlyle than the one commonly received, I intended to finish them with a rapid survey of the chief misapprehensions current in later years about the Chelsea household; but they have run to an unexpected length, and I prefer to postpone to another time and place this purpose, which is by no means relinquished.—*Contemporary Review*.

THE TYRANNY OF THE NOVEL.

BY EDMUND GOSSE.

A PARISIAN Hebraist has been attracting a moment's attention to his paradoxical and learned self by announcing that strong-hearted and strong-brained nations do not produce novels. This gentleman's soul goes back, no doubt, in longing and despair to the heart of Babylon and the brain of Gath. But if he looks for a modern nation that does not cultivate the novel, he must, I am afraid, go far afield. Finland and Roumania are certainly tainted; Bohemia lies in the bond of naturalism. Probably Montenegro is the one European nation which this criterion would leave strong in heart and brain. The amusing absurdity of this whim of a pedant may serve to remind us how universal is now the reign of prose fiction. In Scandinavia the drama may claim an equal prominence, but no more. In all other countries the novel takes the largest place, claims and obtains the widest popular at-

tention, is the admitted tyrant of the whole family of literature.

This is so universally acknowledged nowadays that we scarcely stop to ask ourselves whether it is a heaven-appointed condition of things, existing from the earliest times, or whether it is an innovation. As a matter of fact, the predominance of the novel is a very recent event. Most other classes of literature are as old as the art of verbal expression: lyrical and narrative poetry, drama, history, philosophy,—all these have flourished since the sunrise of the world's intelligence. But the novel is a creation of the late afternoon of civilization. In the true sense, though not the pedantic one, the novel began in France with *La Princesse de Clèves*, and in England with *Pamela*—that is to say, in 1677 and in 1740 respectively. Compared with the dates of the beginning of philosophy and of poetry, these are as yesterday and the day before yesterday. Once started, however, the sapling of prose fiction grew and spread

* Mrs. Carlyle's niece, and by marriage with his nephew, Mr. Carlyle's niece also.

mightily. It took but a few generations to overshadow all the ancient oaks and cedars around it, and with its monstrous foliage to dominate the forest.

It would not be uninteresting, if we had space to do so here, to mark in detail the progress of this astonishing growth. It would be found that, in England at least, it has not been by any means regularly sustained. The original magnificent outburst of the English novel lasted for exactly a quarter of a century, and closed with the publication of *Humphrey Clinker*. During this period of excessive fertility in a hitherto unworked field, the novel produced one masterpiece after another, positively pushing itself to the front and securing the best attention of the public at a moment when such men as Gray, Butler, Hume, and Warburton were putting forth contributions to the old and long-established sections of literature. Nay: such was the force of the new kind of writing that the gravity of Johnson and the grace of Goldsmith were seduced into participating in its facile triumphs.

But, at the very moment when the novel seemed about to sweep everything before it, the wave subsided and almost disappeared. For nearly forty years, only one novel of the very highest class was produced in England; and it might well seem as though prose fiction, after its brief victory, had exhausted its resources, and had sunk forever into obscurity. During the close of the eighteenth century and the first decade of the nineteenth, no novel, except *Evelina*, could pretend to disturb the laurels of Burke, of Gibbon, of Cowper, of Crabbe. The publication of *Caleb Williams* is a poor event to set against that of the *Lyrical Ballads*; even *Thalaba the Destroyer* seemed a more impressive phenomenon than the *Monk*. But the second great burgeoning of the novel was at hand. Like the tender ash, it delayed to clothe itself when all the woods of romanticism were green. But in 1811 came *Sense and Sensibility*, in 1814 *Waverley*; and the novel was once more at the head of the literary movement of the time.

It cannot be said to have stayed there very long. Miss Austen's brief and brilliant career closed in 1817. Sir Walter Scott continued to be not far below his best until about ten years later. But a period of two decades included not only

the work of these two great novelists, but the best books also of Galt, of Mary Ferrer, of Maturin, of Lockhart, of Banim. It saw the publication of *Hajji Baba*, of *Frankenstein*, of *Anastatius*. Then, for the second time, prose fiction ceased for a while to hold a position of high predominance. But Bulwer Lytton was already at hand; and five or six years of comparative obscurity prepared the way for Dickens, Lever, and Lover. Since the memorable year 1837 the novel has reigned in English literature; and its tyranny was never more irresistible than it is to-day. The Victorian has been peculiarly the age of the triumph of fiction.

In the history of France something of the same fluctuation might be perceived, although the production of novels of a certain literary pretension has been a feature of French much longer and more steadily than of English life. As Mr. Saintsbury has pointed out, "it is particularly noteworthy that every one of the eight names which have been set at the head" of the nineteenth-century literature of France "is the name of a novelist." Since the days of Flaubert—for the last thirty years, that is to say—the novel has assumed a still higher literary function than it held even in the hands of George Sand and Balzac. It has cast aside the pretence of merely amusing, and has affected the airs of guide, philosopher, and friend. M. Zola, justified to some extent by the amazing vogue of his own writings, and the vast area covered by their prestige, has said that the various classes of literary production are being merged in the novel, and are ultimately to disappear within it:

"Apollo, Pan, and Love,
And even Olympia Jove
Grow faint, for killing Truth hath glared on
them;
Our hills, and seas, and streams,
Dispeopled of their dreams,"

become the mere primary material for an endless series of naturalistic stories. And even to-day, when the young David of symbolism rises to smite the Goliath Zola, the smooth stones he takes out of his scrip are works of fiction by Maurice Barrès and Edouard Rod. Schools pass and nicknames alter; but the novel rules in France as it does elsewhere.

We have but to look around us at this very moment to see how complete the tyranny of the novel is. If one hundred

educated and grown men—not, of course, themselves the authors of other books—were to be asked which are the three most notable works published in London during the present season, would not ninety-and-nine be constrained to answer, with a parrot uniformity, *Tess of the D'Urbervilles*, *David Grieve*, *The Little Minister*? These are the books which have been most widely discussed, most largely bought, most vehemently praised, most venomously attacked. These are the books in which the “trade” has taken most interest, the vitality of which is most obvious and indubitable. It may be said that the conditions of the winter of 1892 were exceptional—that no books of the first class in other branches were produced. This may be true; and yet Mr. Jebb has issued a volume of his Sophocles, Mr. William Morris a collection of the lyric poems of years, Mr. Froude his *Divorce of Catherine of Aragon*, and Mr. Tyndall his *New Fragments*. If the poets in chorus had blown their silver trumpets and the philosophers their bold bassoons, the result would have been the same: they would have won some respect and a little notice for their performances; but the novelists would have carried away the money and the real human curiosity. Who shall say that Mr. Freeman was not a better historian than Robertson was? yet did he make £4,500 by his *History of Sicily*? I wish I could believe it. To-day Mr. Swinburne may publish a new epic, Mr. Gardiner discover to us the head of Charles I. on the scaffold, Mr. Herbert Spencer explore a fresh province of sociology, or Mr. Pater analyze devils in the accents of an angel,—none of these important occurrences will successfully compete, for more than a few moments, among educated people, with the publication of what is called, in publishers' advertisements, “the new popular and original novel of the hour.” We are accustomed to this state of things, and we bow to it. But we may, perhaps, remind ourselves that it is a comparatively recent condition. It was not so in 1730, nor in 1800, nor even in 1835.

Momentary aberrations of fashion must not deceive us as to the general tendency of taste. Mr. Hall Caine would have us believe that the public has suddenly gone crazy for stage-plays. “Novels of great strength and originality,” says the author of *The Scapegoat*, “occasionally appear

without creating more than a flutter of interest, and, meanwhile, plays of one-tenth their power and novelty are making something like a profound impression.” What plays are these? Not the Ollendorffian attitudinizations of M. Maetelincx, surely! The fact is that two years ago it would have been impossible for any one to pen that sentence of Mr. Caine's, and it is now possible merely because a passion for the literary drama has been flogged into existence by certain able critics. With a limited class, the same class which appreciates poetry, the literary drama may find a welcome; but to suppose that it competes, or can, in this country, even pretend to compete, with the novel is a delusion, and Mr. Caine may safely abandon his locusts and wild honey.

That we see around us a great interest in the drama is, of course, a commonplace. But how much of that is literary? When the delights of the eye are removed from the sum of pleasure, what is left? Our public is interested in the actors and their art, in the scenery and the furniture, in the notion of large sums of money expended, lost or won. When all these incidental interests are extracted from the curiosity excited by a play, not very much is left for the purely literary portion of it,—not nearly so much, at all events, as is awakened by a great novel. After all that has been said about the publication of plays, I suspect that the sale of dramatic contemporary literature remains small and uncertain. Mr. Pinero is read; but one swallow does not make a summer. Where are the dramatic works of Mr. Sydney Grundy, which ought—if Mr. Caine be correct—to be seen on every book-shelf beside the stories of Mr. Hawley Smart?

If, however, I venture to emphasize the fact of the tyranny of the novel in our current literature, it is without a murmur that I do so. Like the harmless bard in *Lady Geraldine's Courtship*, I “write no satire,” and, what is more, I mean none. It appears to me natural and rational that this particular form of writing should attract more readers than any other. It is so broad and flexible, includes so vast a variety of appeals to the emotions, makes so few painful demands upon an overstrained attention, that it obviously lays itself out to please the greatest number. For the appreciation of a fine poem, of a

learned critical treatise, of a contribution to exact knowledge, peculiar aptitudes are required: the novel appeals to all. Experience, moreover, proves that the gentle stimulus of reading about the cares, passions, and adventures of imaginary personages, and their relations to one another, a mild and irresponsible mirroring of real life on a surface undisturbed by responsibility, or memory, or personal feeling of any kind, is the most restful, the most refreshing, of all excitements which literature produces.

It is commonly said, in all countries, that women are the chief readers of novels. It may well be that they are the most numerous, and that they read more exhaustively than men, and with less selection. They have, as a rule, more time. The general notion seems to be that girls of from sixteen to twenty form the main audience of the novelist. But I am inclined to think that the real audience consists of young married women, sitting at home in the first year of their marriage. They find themselves without any constraint upon their reading: they choose what they will, and they read incessantly. The advent of the first born baby is awaited in silent drawing-rooms, where through long hours the novelists supply the sole distraction. These young matrons form a much better audience than those timorous circles of flaxen-haired girls, watched by an Argus-eyed mamma, which the English novelist seems to consider himself doomed to cater for. I cannot believe that it is anything but a fallacy that young girls do read. They are far too busy with parties and shopping, chatting and walking, the eternal music and the eternal tennis. Middle-aged people in the country, who are cut off from much society, and elderly ladies, whose activities are past, and who like to resume the illusions of youth, are far more assiduous novel-readers than girls. But, if we take these and all other married and unmarried women into consideration, there is still apparently an exaggeration in saying that it is they who make the novelist's reputation. Men read novels a great deal more than is supposed, and it is probably from men that the first-class novel receives its *impetus*. Men have made Mr. Thomas Hardy, who owes nothing to the fair sex; if women read him now, it is because the men have told them that they must. Oc-

casional we see a very original writer who decidedly owes his fame to the plaudits of the ladies. M. Paul Bourget is the most eminent example that occurs to the memory. But such instances are rare, and it is probably to the approval of male readers that most eminent novelists owe that prestige which ultimately makes them the favorites of the women. Not all men are pressed by the excessive agitations of business life which are habitually attributed to their sex. Even those who are most busy find time to read, and we have been lately informed that among the most constant and assiduous students of new novels are Lord Tennyson and Mr. Gladstone. Every story-teller, I think, ought to write as though he believed himself addressing these illustrious veterans.

As I say, I do not revolt against the supremacy of the novel. I acknowledge too heavy a debt of gratitude to my great contemporaries to assume any but a thankful attitude toward them. In my dull and weary hours each has come like the angel Israfil, and let me listen to the beating of his heart, be it lyre or guitar, a solemn instrument or a gay one. I should be bankrupt instantly if I sought to repay to Mr. Meredith or Mr. Besant, Mr. Hardy or Mr. Norris, Mr. Stevenson or Mr. Kipling—to name no others—one-tenth part of the pleasure which, in varied quantity and quality, the stories of each have given me. I admit (for which I shall be torn in pieces) that the ladies please me less, with some exceptions; but that is because, since the days of the divine Mrs. Gaskell, they have been so apt to be either too serious or not serious enough. I suppose that the composition of *The Wages of Sin* and of *Donovan* serves some excellent purpose. Doubtless these books are useful to great growing girls. But it is not to such stories as these that I owe any gratitude, and it is not to their authors that I address the presumptuous remarks which follow.

A question which constantly recurs to my mind is this: Having secured the practical monopoly of literature, having concentrated public attention on their wares, what are the novelists going to do next? To what use will they put the unprecedented opportunity thrown in their way? It is quite plain that to a certain extent the material out of which the English novel has been constructed is in dan-

ger of becoming exhausted. Why do the American novelists inveigh against plots? Not, we may be sure, through any inherent tenderness of conscience, as they would have us believe; but because their eminently sane and somewhat timid natures revolt against the effort of inventing what is extravagant. But all the obvious plots, all the stories which are not in some degree extravagant, seem to have been told already, and for a writer with the temperament of Mr. Howells there is nothing left but the careful portraiture of a small portion of the limitless field of ordinary humdrum existence. So long as this is fresh, this also may amuse and please; to the practitioners of this kind of work it seems as though the infinite prairie of life might be surveyed thus for centuries, acre by acre. But that is not possible. A very little while suffices to show that in this direction also the material is promptly exhausted. Novelty, freshness, and excitement are to be sought for at all hazards, and where can they be found?

The novelists hope many things from the happy system of nature, that supplies them, year by year, with fresh generations of the ingenuous young. The procession of adolescence moves on and on, and the front rank of it, for a month or a year, is duped by the novelist's report of that astonishing phenomenon, the passion of love. In a certain sense, we might expect to be tired of love-stories as soon as, and not before, we grow tired of the ever-recurring March mystery of primroses and daffodils. Each generation takes its tale of love under the hawthorn-tree as something quite new, peculiar to itself, not to be comprehended by its elders; and the novelist pipes as he will to this idyllic audience, sure of pleasing, if he adapt himself never so little to their habits and the idiosyncrasies of their time. That theory would work well enough if the novelist held the chair of Erotics at the University of life, and might blamelessly repeat the same (or very slightly modified) lectures to none but the students of each successive year. But, unfortunately, we who long ago took our degree, who took it, perhaps, when the Professor was himself in pinafores, also continue to attend his classes. We are hardly to be put off with the old, old commonplaces about hearts and darts. Yet our adult acquiescence is necessary for the support of the Professor.

How is he to freshen up his oft-repeated course of lectures to suit our jaded appetites?

It would be curious to calculate how many tales of love must have been told since the vogue of the modern story began. Three hundred novels a year is, I believe, the average product of the English press. In each of these there has been at least one pair of lovers, and generally there have been several pairs. It would be a good question to set in a mathematical examination: What is the probable number of young persons who have conducted one another to the altar in English fiction during the last hundred years? It is almost terrible to think of this multitude of fictitious love-makings,—

“For the lovers of years meet and gather;
The sound of them all grows like thunder:
O into what bosom, I wonder,
Is poured the whole passion of years?”

One would be very sorry to have the three hundred of one year poured into one's own mature bosom. But how curious is the absolute unanimity of it all! Thousands and thousands of books, every one of them, without exception, turning upon the attraction of Edwin to Angelina, exactly as though no other subject on earth interested a single human being! The novels in which love has not formed a central feature are so few that I suspect that they could be counted on the fingers of one hand. At this moment, I can but recall a single famous novel in which love has no place. This is, of course, *L'Abbé Tigrane*, that delightful story in which all the interest revolves around the intrigues of two priestly factions in a provincial cathedral. But, although M. Ferdinand Fabre achieved so great a success in this book, and produced an acknowledged masterpiece, he never ventured to repeat the experiment. Eros revels in the pages of all his other stories.

This would be the opportunity to fight the battle of the novelists against Mrs. Grundy. But I am not inclined to waste ink on that conceded cause. After the reception of books like *Tess of the D'Urbervilles* and even *David Grieve*, it is plain that the English novelist, who cares and dares, may say almost anything he or she likes without calling flame out of heaven upon his head. There has been a great reform in this respect, since the days when our family friend Mr. Punch hazarded his

very existence by referring, in grimdest irony, to the sufferings of "the gay." We do not want to claim the right which the French have so recklessly abused of describing, at will and secure against all censure, the brutal, the abnormal and the horrible. No doubt a silly prudishness yet exists. There are still clergymen's wives who write up indignantly from The Vicarage, Little Pedlington. I have just received an epistle from such an one, telling me that certain poor productions I am editing "make young hearts acquainted with vice, and put hell-fire in their hearts." "Woe unto you in your evil work," says this lady, doubtless a most sincere and conscientious creature, but a little behind the times. Of her and her race individually I wish to say nothing but what is kind; but I confess I am glad to know that the unreflecting spirit they represent is passing away. It is passing away so rapidly that there is really no need to hearten the novelists against it. If they are so poor-spirited as to be afraid to say what they feel they ought to say because of this kind of criticism, their exposition of the verities is not likely to be of very high value.

But I should like to ask our friends the leading novelists whether they do not see their way to enlarging a little the sphere of their labors. What is the use of this tyranny which they wield, if it does not enable them to treat life broadly and to treat it whole? The varieties of amatory intrigue form a fascinating subject, which is not even yet exhausted. But, surely, all life is not love-making. Even the youngest have to deal with other interests, although this may be the dominant one; while, as we advance in years, Venus ceases to be even the ruling divinity. Why should there not be novels written for middle-aged persons? Has the struggle for existence a charm only in its reproductive aspects? If every one of us regards his or her life seriously, with an absolute and unflinching frankness, it will be admitted that love, extended so as to include all its forms—its sympathetic, its imaginative, its repressed, as well as its fulfilled and acknowledged forms—takes a place far more restricted than the formulae of the novelist would lead the inhabitant of some other planet to conjecture.

Unless the novelists do contrive to enlarge their borders, and take in more of

life, that misfortune awaits them which befell their ancestors just before the death of Scott. About the year 1830 there was a sudden crash of the novel. The public found itself abandoned to Lady Blessington and Mr. Plumer Ward, and it abruptly closed its account with the novelists. The large prices which had been, for twenty years past, paid for novels were no longer offered. The book clubs, throughout the kingdom, collapsed, or else excluded novels. When fiction reappeared, after this singular epoch of eclipse, it had learned its lesson, and the new writers were men who put into their work their best observation and ripest experience. It does not appear in the thirties that any one understood what was happening. The stuff produced by the novelists was so ridiculous and ignoble that "the nonsense of that devil of a Bullwig" seemed positively unrivalled in its comparative sublimity, although these were the days of *Ernest Maltravers*. It never occurred to the authors when the public suddenly declined to read their books (it read "Bullwig's," in the lack of anything else) that the fault was theirs. The same excuses were made that are made now,—“necessary to write down to a wide audience;” “obliged to supply the kind of article demanded;” “women the only readers to be catered for;” “mammæ so solicitous for the purity of what is laid before their daughters.” And the crash came.

The crash will come again, if the novelists do not take care. The same silly piping of the loves of the drawing-room, the same obsequious attitude toward a supposititious public clamoring for the commonplace, inspire the majority of the novel writers of to-day. Happily, we have, what our fathers in 1835 had not, half a dozen careful and vigorous men of letters who write, not what the foolish publishers ask for, but what they themselves choose to give. The future rests with these few recognized masters of fiction, and with their successors, the vigorous younger men who are preparing to take their place. What are these novelists going to do? They were set down to farm the one hundred acres of an estate called Life, and because one corner of it—the two or three acres hedged about, and called the kitchen-garden of Love—offered peculiar attractions, and was very easy to cultivate, they have neglected the

other ninety-seven acres. The result is that by over-pressing their garden, and forcing crop after crop out of it, it is well-nigh exhausted, and will soon refuse to respond to the incessant hoe and spade; while, all the time, the rest of the estate, rich and almost virgin soil, is left to cover itself with the weeds of newspaper police-reports.

It is supposed that to describe one of the positive employments of life,—a business or a profession, for example,—would alienate the tender reader, and check that circulation about which novelists talk as nervously as if they were delicate invalids. But what evidence is there to show that an attention to real things does frighten away the novel reader? The experiments which have been made in this country to widen the field of fiction in one direction, that of religious and moral speculation, have not proved unfortunate. What was the source of the great popular success of *John Inglesant* and then of *Robert Elsmere*, if not the intense delight of readers in being admitted, in a story, to a wider analysis of the interior workings of the mind than is compatible with the mere record of the billing and cooing of the callow young? We are afraid of words and titles. We are afraid of the word "psychology," and, indeed, we have seen follies committed in its name. But the success of the books I have just mentioned was due to their psychology, to their analysis of the effect of associations and sentiments on a growing mind. To make such studies of the soul even partially interesting, a great deal of knowledge, intuition, and workmanlike care must be expended. The novelist must himself be acquainted with something of the general life of man.

But the interior life of the soul is, after all, a very much less interesting study to an ordinarily healthy person than the exterior. It is surprising how little our recent novelists have taken this into consideration. One reason, I cannot doubt, is that they write too early and they write too fast. Fielding began with *Joseph Andrews*, when he was thirty-five; seven years later he published *Tom Jones*; during the remainder of his life, which closed when he was forty-seven, he composed one more novel. The consequence is that into these three books he was able to pour the ripe knowledge of an all-accomplished

student of human nature. But our successful novelist of to-day begins when he is two or three-and-twenty. He "catches on," as they say, and he becomes a laborious professional writer. He toils at his novels as if he were the manager of a bank or the captain of an ocean steamer. In one narrow groove he slides up and down, up and down, growing infinitely skilful at his task of making bricks out of straw. He finishes the last page of "The Writhing Victim" in the morning, lunches at his club, has a nap; and, after dinner, writes the first page of "The Swart Sombrero." He cannot describe a trade or a profession, for he knows none but his own. He has no time to look at life, and he goes on weaving fancies out of the ever-dwindling stores of his childish and boyish memories. As these grow exhausted, his works get more and more shadowy, till at last even the long-suffering public that once loved his merits, and then grew tolerant of his tricks, can endure him no longer.

The one living novelist who has striven to give a large, competent, and profound view of the movement of life, is M. Zola. When we have said the worst of the *Rougon-Macquart* series, when we have admitted the obvious faults of these books,—their romantic fallacies on the one hand, their cold brutalities on the other,—it must be admitted that they present the results of a most laudable attempt to cultivate the estate outside the kitchen-garden. Hardly one of the main interests of the modern man has been neglected by M. Zola, and there is no doubt at all that to the future student of nineteenth-century manners his books will have an interest outweighing that of all other contemporary novels. An astonishing series of panoramas he has unrolled before us. Here is *Le Ventre de Paris*, describing the whole system by which a vast modern city is daily supplied with food; here is *Au Bonheur des Dames*, the romance of a shop, which is pushed upward and outward by the energy of a single ambitious tradesman, until it swamps all its neighbors, and governs the trade of a district; here is *L'Argent*, in which, with infinite pains and on a colossal scale, the passions which move in *la haute finance* are analyzed, and a great battle of the money-world chronicled; here, above all, is *Germinal*, that unapproachable picture of the

agony and stress of life in a great mining community, with a description of the processes so minute and so technical that this novel is accepted by experts as the best existing record of conditions which are already obsolete.

In these books of M. Zola's, as every one knows, successive members of a certain family stand out against a background of human masses in incessant movement. The peculiar characteristic of this novelist is that he enables us to see why these masses are moved, and in what direction. Other writers vaguely tell us that the hero "proceeded to his daily occupation," if, indeed, they deign to allow that he had an occupation. M. Zola tells us what that occupation was, and describes the character of it carefully and minutely. More than this : he shows us how it affected the hero's character, how it brought him into contact with others, in what way it represented his share of the universal struggle for existence. So far from the employment being a thing to be slurred over or dimly alluded to, M. Zola loves to make that the very hero of his piece, a blind and vast commercial monster, a huge all-embracing machine, in whose progress the human persons are hurried helplessly along, in whose iron wheels their passions and their hopes are crushed. He is enabled to do this by the exceptional character of his genius, which is realistic to excess in its power of retaining and repeating details, and romantic, also to an extreme, in its power of massing these details on a huge scale, in vast and harmoniously-balanced compositions.

I would not be misunderstood, even by the most hasty reader, to recommend an imitation of M. Zola. What suits his peculiarly-constituted genius might ill accord with the characteristics of another. Nor do I mean to say that we are entirely without something analogous in the writings of the more intelligent of our later novelists. The study of the Dorsetshire dairy-farms in Mr. Hardy's superb *Tess of the D'Urbervilles* is of the highest value, and more thorough and intelligible than what we enjoyed in *The Woodlanders*, the details of the apple-culture in the same county. To turn to a totally different school : Mr. Hall Caine's *Scapegoat* is a very interesting experiment in fresh fields of thought and experience, more happily conceived, if I may be permitted

to say so, than fortunately executed, though even in execution far above the ruck of popular novels. A new Cornish story, called *Inconsequent Lives*, by that very promising young story-teller, Mr. Pearce, seemed, when it opened, to be about to give us just the vivid information we want about the Newlyn pilchard-fishery ; but the novelist grew timid, and forebore to fill in his sketch. These are instances in which, occasionally, or fantastically, or imperfectly, the real facts of life have been dwelt upon in recent fiction. But when we have mentioned or thought of a few exceptions, to what inanities do we not presently descend !

If we could suddenly arrive from another planet, and read a cluster of novels from Mudie's, without any previous knowledge of the class, we should be astonished at the conventionality, the narrowness, the monotony. All I ask for is a larger study of life. Have the stress and turmoil of a successful political career no charm ? Why, if novels of the shop and the counting-house be considered sordid, can our novelists not describe the life of a sailor, of a game-keeper, of a railway-porter, of a civil engineer ? What capital central figures for a story would be the whip of a leading hunt, the foreman of a colliery, the master of a fishing smack, or a speculator on the Stock Exchange ! It will be suggested that persons engaged in one or other of these professions are commonly introduced into current fiction, and that I am proposing as a novelty what is amply done already. My reply is that our novelists may indeed present to us a personage who is called a stoker or a groom, a secretary of state or a pin-maker, but that, practically, they merely write these denominations clearly on the breasts of lay-figures. For all the enlightenment we get into the habits of action and habits of thought entailed by the occupation of each, the fisherman might be the groom and the pin-maker the stock-broker. It is more than this that I ask for. I want to see the man in his life. I am tired of the novelist's portrait of a gentleman, with gloves and hat, leaning against a pillar, upon a vague landscape background. I want the gentleman as he appears in a snap-shot photograph, with his every-day expression on his face, and the localities in which he spends his days accurately visible around him. I cannot think that

the commercial and professional aspects of life are unworthy of the careful attention of the novelist, or that he would fail to be rewarded by a larger and more interested audience for his courage in deal-

ing closely with them. At all events, if it is too late to ask our accepted tyrants of the novel to enlarge their borders, may we not, at all events, entreat their heirs-apparent to do so?—*National Review*.

LITERARY NOTICES.

THE GREATEST OF FRENCH NOVELISTS.

A MEMOIR OF HONORÉ DE BALZAC. Compiled and written by Katharine Prescott Wormeley. Boston: Roberts Brothers.

Whether the biography (in any true sense) of any man, whose greatness is that of a writer pure and simple, can ever be written is an open question. He who stands related to public interest by his greatness in public affairs, of necessity leaves behind him memorials which furnish ample material wherewith to tell the sufficient tale of his life; but the author, specially he who works in the domain of imagination, is so lost in what he does that in many cases his personal career is entirely uneventful. The biographical interest here is so purely subjective that its main attraction will be found chiefly in such exposures of the mechanism of his work, of the development of his subjects and its relation to his external life, and of the causes of his modes of thinking, such as he himself may have left behind in letters and diaries; or in those episodes of suffering wherewith perhaps he bitterly purchased his right to the world's ear. Miss Wormeley at the very outset deplores the insufficiency of material at her command. Balzac left behind him but few personal memorials that could give any clue to his internal life; but the recollections of his friends, which were put on record, suffice perhaps amply for any such purpose as Miss Wormeley could reasonably hope to fill—i.e., a vivid sketch of the man as he appeared to the world around him. Perhaps few readers would care for more. Balzac's greatness was in his achievement, not in what he was. The fertility of his genius was not inferior to its quality, for in the twoscore years of his literary activity he produced works under nearly a hundred titles, the majority of which were separate volumes, including novels, tales, social studies, and essays. Eighty-eight of these were classed under "La Comédie Humaine," that colossal enterprise which aimed to reproduce all the salient characteristics of the life

of his nation and his epoch, and in some measure of civilized humanity. While the charm of Balzac is often that of local color and delineation, he frequently rises to that sweep of vision which belongs to a Shakespeare or a Goethe, and escapes from those limitations which seem to be inherent in most Frenchmen even of genius. One of the greatest of his contemporaries, George Sand, characterizes his novels thus:

"They are not novels, these imperishable books of the great critic, as novels were understood before his day. He is, and pre-eminently, the critic of human life; he has written not alone for the pleasures of the imagination, but for the archives of moral history, the memoirs of the half century which has now just passed. . . . The novel was to Balzac a frame and pretext for an almost universal examination of the ideas, sentiment, customs, habits, legislation, arts, trades, costumes, localities—in short, of all that constituted the lives of his contemporaries. . . . When Balzac, having found the secret of his destiny and solved the enigma of his genius, grasped that deep and admirable idea of the 'Comédie Humaine,' when by laborious and ingenious classification he welded all parts of his work into a logical whole, each of these parts, even those I liked least on their first appearance, took their rightful place and assumed their real value. Each of these books is, in fact, a page of the great work, which would be incomplete without this important page. For this reason it is necessary to read the whole of Balzac. Nothing is unimportant to the general work; and we soon perceive that in this immeasurable stretch of the imagination he has sacrificed nothing. Every book for him has been an exhausting study; and when we think that he had not, like Dumas, the power of a marvellous memory; like Lamartine, facility of style; like Alphonse Karr, poetry ready-made in his eyes (not to speak of a dozen special qualities gratuitously bestowed on others by nature), but that, on the contrary, the labor of execution was long, ex-

tremely difficult to him, that form was constantly intractable to his will, that ten years of his life were sacrificed on experiments, and finally that he was ever struggling with material cares, battling with all his strength to reach a time when he might live in peace—thinking of all these things, one asks one's self what angel and what demon watched at his side, and revealed to him the good and the evil, the real and the ideal, the history of which he has bequeathed us."

Balzac was one of the most laborious and careful workers who ever lived. He was never satisfied with the results, and the continual reworking of his matter, which preceded the final appearance, is perhaps responsible for a certain rigidity and harshness of style, which is the defect of its quality. Extreme lucidity and compression, a certain pregnancy and weightiness of phrase undoubtedly mark all his work, but we find in it an absence of that indescribable charm and ease, what might be called fluidity, so characteristic of many French writers. He leaves but little to the imagination. Every detail is worked out with scientific precision, and the result is sometimes almost cumbersome. Had he worked less faithfully for perfection, one is sometimes tempted to think, his style would have been more attractive; but the man is too great to be measured by a flaw of this kind, which may have been the price he paid for the success of his profound and restless search after the things buried in the remotest recesses of the human heart.

After Balzac had pondered and lived out his subject long enough he was wont to make a general sketch. This was returned from the printer in detached columns set in the centre of large sheets. This sketch he studied with the keenest critical attention. This he changed or added to with lines starting from the beginning, middle, or end of sentences, till the whole sheet was filled close with minute writing. Other sheets of paper with stars, crosses, and letters, showing where the new matter was to be inserted, were pasted on, till the original proof was completely buried in the additions. When the revised proofs came back from the printer they went through the same process again; and again and again the operation was repeated. Often he would ruthlessly destroy, in a few moments, in a fit of dissatisfaction, what might have cost him weeks to accomplish. The printers were always in despair at the work he gave them to do, and in one or two instances they refused

to set up his manuscript. When at work Balzac secluded himself from everybody, and never left the house. His meals were brought to his room by a faithful servant, and here he would labor sixteen or eighteen hours a day for months, till he had finished his task. A man of herculean strength and build, he would emerge from these tremendous throes of parturition so weak and reduced in flesh that his friends scarcely knew him, and would then devote himself to the recovery of his lost strength. There is no doubt that his reckless waste of an originally fine constitution by this unwise method of creation was responsible for his death at an age when he should have been in his splendid prime. His untimely taking off was sad and pathetic in the extreme. He had paid off a mountain-load of debt; he had achieved wealth and the most splendid fame of his generation; he had furnished an exquisite house, containing treasures of art almost priceless, and many of which he describes in his "Cousin Pons;" he had just brought home, as mistress of his heart and hearthstone, the woman he had loved with passionate tenderness for many years, whose widowhood had only recently been able to crown her lover's devotion. Life promised him every bliss possible to a reasonable man, when the fatal knock came at the door to the man scarcely more than a month a bridegroom. He died August 18th, 1850, aged fifty-one years. His imperishable monument is found in the French literature, to which he added so many of its greatest treasures.

Miss Wormeley has judiciously constituted the larger portion of her memorial of translations *verb et lit* from the reminiscences and judgments of Balzac's contemporaries. Personal and family details are mostly drawn from the work, "Balzac sa vie et ses œuvres D'Après sa Correspondance," by Madame Surville, the novelist's sister. The compilation is of much interest, and Miss Wormeley has laid the lovers of Balzac under fresh obligation by this tribute to the man of whose masterpieces she has made such clever translations.

A STRIKING NOVEL.

GRANIA. THE STORY OF AN ISLAND. By the Hon. Emily Lawless, author of "Hurriah, a Study," etc. New York: Macmillan & Co.

It would be almost correct to designate this powerful book a study in black and white, so simple and limited is its field of emotion;

but passion and experience, which cleave so deep and close to the roots of things, a drama with all its simplicity so intense can scarcely be comprised within so narrow a suggestion. All the personages of the story are illiterate peasant folk, living on a small island in the Bay of Galway, who speak only their native Irish tongue, and are pent up by the limitations which go with this exclusion of language. Poverty, hard fare, meagre lives, and bounded intelligence belong to these fishers and weavers, whose experience is bounded by an insignificant islet; but in this material Miss Lawless has found the substance of a profound tragedy, and has told the story of it with the breadth and delicacy of a great artist.

Grania O'Malley, the daughter of a fisherman by his second marriage with one of those magnificent peasants not uncommon in the west of Ireland, who inherit the rich passion and beauty of the Spanish blood, grows to womanhood with all the fine qualities in body and spirit of her maternal heredity. To this grand creature stands in contrast her half-sister, Honor, a simple, saintly creature, whose soul is absorbed in the things of the other world, and whose body is broken by disease. The two lonely women, possessing what to their people means a small competence, though as far apart as the poles, love each other with singular devotion; but this is not Grania's only love. Since childhood her heart had been wedded to Murdough Blake, whom her imagination had idealized as a man worthy of his physical beauty and of that gift of braggadocio, the voice of diffuse and fanciful dreaming with no power of action, so characteristic of a large class of the Irish race. These three are the central figures of the tragedy: Honor, with a soul already lost in the other world to which she is swiftly approaching; Grania, whose splendid beauty and tenderness are all of this earth, yet sanctified by the power of heroic self-sacrifice; Murdough, lazy, selfish, garrulous even to eloquence, handsome, with a soul lying only skin-deep. For the clash of forces and their resulting incidents which sway the relations of these three, we must refer the reader to the book to follow in their full rehearsal. Their possibilities it requires but little imagination to forecast. We will merely indicate the author's power and quality by a reference to the consummation. Honor lies dying in her desolate island home far from the mainland, and her one thought is for priestly confession and consolation. This must be found

across a wide waste of waters, over which a deep fog had settled, and Grania in vain beseeches her idle and shallow lover to dare the waves in pursuit of the sacred mission, that the parting soul may be eased. Murdough refuses this test of his love, and the desperate girl secures the assistance of an idiot lad and ventures in person across the dangerous strait. She pushes her frail coracle through the blanket of mist which hides a network of rock and shoal, and feels her way with a dumb presentiment of despair, for fate seems to close around her. The fog grows more dense, and the girl, losing her bearings, rows for hours at random, knowing nothing where she is going. Her shallop strikes a cruel, ragged rock, and though her idiot companion escapes by climbing on the reef, Grania is hurled into the water. Though she struggles for life with all the tenacity of despair, not so much that she may save herself, but that her dying sister may have priestly absolution, all is in vain.

"Twice she neared the rock, striking out bravely through the water, though she was unable to swim, and twice the current pulled her back again, sweeping her farther and farther toward the open sea, but so lightly, so buoyantly, as it were playfully, toying capriciously with her, as a child or a young animal plays with something that it has taken a fancy to. . . . 'Murdough!' she cried, 'tis drowning I am, for God's sake come to me!' There was no response of any sort. There was only the swaying water; only the dimly seen foam streaked surface; only the white, closely enveloping shroud of fog; only Phelim's small face peering helplessly over the rock so few feet away in reality, such miles and miles away for any practical purpose. . . . Grania had now ceased to struggle. She was sinking slowly, but she still kept her head partially above the surface. Had there been the slightest movement of the water all would have been over before this, but as it was death, too, seemed to linger, to share in the general suspension of all things, to delay and linger. Suddenly a quantity of brown sea-weed, stirred by the tide, swept around the corner of the big rock, and floated down toward her. It was a mass of enormously long laminaria grown not within tide marks, but out in the deeper, more abysmal region, as leathery in texture, as solid and seemingly as sustaining as the branch of a forest tree, the thick strands welded together by years of growth in the deep water. It floated up to her, then under her, half lifting her upon itself as on a raft, her hands clutching in the thick, oily strands, her whole body sustained and for the moment uplifted by it. With this feeling of support from below a new look came into her face; her eyes opened widely, and she suddenly stretched out her hands. 'Angh, Murdough, Murdough!' she murmured deliriously, 'didn't I know you'd

come? Didn't I know you'd never leave your poor Grania to drown by herself in the cruel salt sea? Arrah! take me up then, darling, take me up. Be quick, dear, and gather me up out of this cold, creeping water! Augh! but 'tis the strong arms you have, though you'd always have it 'twas me was the strongest, you rogue. Hold me closer to you, Murdough, dear; hold me closer, I say, closer, closer still. Augh, Murdough! . . . Murdoughen."

And so the drowning girl, clutched by the fatal sea-weed, which in her delirium she had fancied to be the loving arms of her Murdough come to save her, sinks out of sight. Miss Lawless has told her story with so much imaginative power, yet with such restraint and simplicity of method, that the critic is well justified in using superlatives. It is a minor masterpiece, and is sure to receive the cordial recognition of all lovers of good art in literature.

A NOTED GREEK SATIRIST.

SELECTIONS FROM LUCIAN. Translated by Emily James Smith. New York: Harper & Brothers.

Lucian is perhaps less known and quoted from than any other prominent Greek author, but there is no voice of Hellenic genius more closely in sympathy with modern thought, and which anticipates so closely many of the complex problems and fancies of this artificial and pessimistic age. Yet Lucian withal has much of the *naïveté* of a child, and laughs at follies of belief with the Epicurean carelessness so characteristic of Horace, instead of scourging the habits and superstitions of his time with the whip of scorpions wielded first by Aristophanes and later by Juvenal. It seems a pity that a writer who strikes so many of the key-notes which give tune and purpose to our own contemporary spirit should be so alien even to the knowledge of most students. A little Lucian is, we believe, read in some of our universities (or was thirty years ago), but such a trivial knowledge of the satirist goes for little. The translation before us serves a good purpose, then, in the introduction of a delightful classic, which ought to be better known. Lucian was a post Christian writer, whose life spanned a large portion of the second century, and, of course, he does not represent the Greek language as written in its purest and finest form; but he was an assiduous student of the Attic dialect, and he used the tongue of Perikles and Sophokles with a flexibility and grace which had no equal among his contemporaries. He did not hesitate to

tax the conversational idioms of his period, for Greek was already in a state of transition, but not so far as to mar the beauty of his style, if, indeed, this easy undress of method did not add to the richness and vigor of thought which united philosophy and wit. Lucian was distinctively a man of keen literary taste, and regarded literature as a profession in a sense scarcely shared by any of the great writers who had preceded him. In many ways he reminds one of Voltaire, not only in his wit and brilliancy and in a careful study of form, but in that dexterous use of vernacular language which, attentive to the claims of the old models, yet imparted into the instrument of expression an agility and liveliness derived from the familiar associations of his own period. During the earlier part of his long life Lucian was a sophist and advocate, and in the pursuit of his profession travelled widely in Asia Minor, his native region, Greece, Italy, and Gaul. His latter days were spent in Egypt in the enjoyment of the large fortune which he had made, and probably he would have been named proconsul by Alexander Severus had he not died in the ripeness of age. Though belief in the old religion was thoroughly undermined, it was still a part of the machinery of government, and formally protected by the State. Lucian's mordant assaults on paganism, while furnishing amusement to the more cultivated classes, excited the hate of large numbers of fanatics who still clung to the Olympian deities. Had he not maintained powerful interest at court, it probably would have gone hard with one who was currently known as the "Blasphemer;" but imperial jealousy, which devoted itself rather to considerations of State policy than of conscience, could well afford to ignore the satirist who scoffed at the Olympians and believed in nothing, while it would have thrown to the lions the enthusiast who rejected Jupiter but worshipped Christ.

The writings of Lucian cover a considerable range, but his "Dialogues" (a literary form which he may be said to have originated) are best known. These differ widely from discussions of a serious spirit to the most pungent comedy and broad buffoonery. The style and method of his humor, which are in so many respects essentially modern, are better exemplified here than in anything else he wrote. The selections from the "Dialogues" which are offered to us in the present volume are "Zeus the Tragedian," "The Sale of Lives," "The Cock," "The Ferry," and

"Taxaria." These give a sufficiently varied notion of Lucian's versatility, though we wish that the "Banquet," one of the most witty and interesting of them all, had also been included. In the latter the scene is a wedding feast, to which philosophers of the principal sects have been invited. While the humbler guests behave with discretion the philosophers go at each other, hammer and tongs, first with their tongues and then with their fists, till all ends in disgraceful riot. In the "Sale of Lives" (or the "Sale of Philosophers," as it would be better translated) the founders of the different sects are put up at auction by Mercury, each one having a word to say for himself. Pythagoras fetches ten minæ. The ragged cynic Diogenes is knocked down for a mere song; Democritus and Heraclitus (the laughing and weeping philosophers) fail to get a bid; Sokrates brings two talents, while Epicurus goes for a trifle; Chrysippus the Stoic commands an insignificant price, and Pyrrho the sceptic, after he has been bought and delivered, persists in doubting whether he has been disposed of or not. "The Ferry," which represents the crossing of the Styx and the trial of the souls of the dead before Rhadamanthus, not less than the others is full of racy and effective satire, which in some respects has as much pertinence to-day as it had in the age of the author, though his ostensible purpose was to ridicule the theory of the under-world then prevalent. Aside from the "Dialogues" the selections are the first chapter of "A True History" and the famous "Loukios." The former of these may almost have been the model which suggested "Gulliver's Travels" to Swift. Its purpose was to illustrate the fact that the early poets and tragedians from Homer down were, through the charm of their genius, really responsible for the belief in the monstrous stories of the gods which men had swallowed. The author proceeds to burlesque these by relating his own Odyssey in a most amusing strain. In the "Loukios" (perhaps suggested by his own name in Greek, Λουκιῶν), the story follows the experiences of the man transformed into an ass, and the beast, reflecting, it need scarcely be said, Lucian's opinions, is not less wise and wonderful than the celebrated quadruped which Balaam rode according to an equally marvellous and satirical allegory.

The translator has contributed a brief but interesting introduction, and she has Englished her subject in an easy vernacular strain

well befitting the original diction. It might not be difficult to point out features which would excite the objections of the pedant, but these are scarcely worth regarding in view of the general excellence of the work done, and the fact that Miss Smith has approximately caught the spirit and atmosphere of her author.

FOREIGN LITERARY NOTES.

WE find in Edmond Scherer's "Essays on English Literature," recently translated by George Saintsbury, and published by Sampson Low & Co., the following discriminating summary of recent phases of English poetry:

"The English genius is much more active, and as a consequence much more supple, than we suppose it to be. It passes rapidly from one hobby to another, and unceasingly seeks to find its way through contrasts. And so Byron, hailed in his day as the personification of the noblest melancholy, ended by seeming artificial and shallow. Tired of grand—and false—sentiments, men turned with delight to a writer whose simplicity was not free from study, but whose very study had often enabled him to reach profound thoughts and a delicate interpretation of nature. Wordsworth was in his turn proclaimed the greatest poet of the time. And then, in his turn, he again was found wanting. Coleridge—a logical enthusiast who united speculative views to mystical intuitions, a poet and a theologian—had given his fellow-countrymen many new lights from the German side. The wind of philosophical systems had made its breath felt. Emotion was found insufficient; ideas were called for. And so Shelley, poor Shelley! so disdained and cried down in his lifetime, succeeded Wordsworth in vogue. The *amende honorable* was made to him; he was proclaimed one of the glories of England. Men became passionately enamored of his ethereal, subtle, intangible poetry, and the hollowness of his humanitarian dreams was forgiven him in virtue of the sublimity and beauty of his imagination. After which he shared the fate of his predecessors. As time went on his defects became more apparent. There was not enough human heart-beat, not enough life, not enough of the dramatic within him. There came a new poet [Tennyson] who, to the science of rhythm, the resources of expression, the gift of epic narration, the deep feeling for nature, to all the caprices of a delightful fancy, to all the favorite ideas, noble or morbid, of modern

thought, knew how to join the language of manly passion. Thus, as it were, summing up in himself all his forerunners, he touched all hearts; he linked together all admirations; he has remained the true representative, the last expression and final, of the poetic period to which he belongs."

M. MAGNIEN, of Grenoble, is preparing for publication a photographic facsimile of the MS. of Dante's *De Vulgari Eloquentia*, which is preserved in the public library of that town. This is not only one of the two oldest sources of the work in existence (both dating from about the end of the fourteenth century), but it is also that from which the *editio princeps* was printed by Corbinelli in 1577. The price asked for the reproduction—a book of fifty pages—is only seven francs.

HERE are some results of American copy-right. Mrs. Humphry Ward's *History of David Grieve* was first issued in one volume for a dollar, and is now to be obtained, in two volumes, "in larger type and on better paper," for three dollars. Mr. J. M. Barrie's *Little Minister*, on the other hand, owing to its prior publication in serial form, has fallen a victim to the pirates, one of whom actually brought it out incomplete, before the final chapters had appeared in *Good Words*. Hence much mystification of the reviewers.

AN Archiv Gesellschaft has just been formed at Berlin with a view of collecting and preserving from oblivion or destruction all available materials in the shape of letters, memoranda, etc., calculated to be of service to the future historian of German literature. The well-known Germanist Dr. K. Weinhold has been appointed president, and Professor Mommsen deputy-president of the society, which owes its origin to a suggestion made by Professor Dilthey about three years ago.

UNDER the auspices of the town council of Leipzig a *Postschule* is to be established there for the special training of Post Office assistants, and eventually also of postmasters. The curriculum will embrace, besides the usual course of instruction, the subjects belonging to the postal service.

THE forthcoming volume of the "Dictionary of National Biography," recently published, extends from Johnes to Kenneth. Mr. Leslie Stephen writes on Dr. Johnson; Mr. H. Morse Stephens on Sir William Jones, the Orientalist; Dr. Richard Garnett, on Ebenezer Jones, the poet; Professor C. H. Herford, on Ben

Jonson; Mr. Joseph Knight on Mrs. Jordan, Edmund Kean, and John Philip Kemble; Mr. R. T. Glazebrook, F.R.S., on James Prescott Joule; Miss Bradley on Angelica Kauffmann, R.A.; Mr. C. W. Sutton on Sir James Kay-Shuttleworth; Canon Venables on Bishop Kaye of Lincoln; Mr. W. A. J. Archbold on Keate of Eton; Mr. Sidney Colvin on Keats; Canon Overton on Keble; Mr. F. Hinds Groome on Marshal Keith; Mr. T. F. Henderson on the Keiths, Earls Marischal; the Rev. Dr. Sinker on Ion Keith-Falconer; the Rev. William Hunt on John Mitchell Kemble, the historian, and Bishop Ken; Professor T. F. Tout on Archbishop Kemp; Mr. Sidney Lee on William Kemp, the Elizabethan actor; Professor J. K. Laughton on Admiral Kempenfelt; and Mr. T. E. Page on Benjamin Hall Kennedy.

THE first volume, A to H, of a "Modern English Biography," on which Mr. Frederic Boase has been engaged for some years, has just been published by Messrs. Netherton & Worth, of Truro. This work contains nearly 8000 concise memoirs of public characters who have died since the year 1850, and gives exact details of the chief events and dates in their lives, and, in the case of authors, the titles of their more important writings. Following the advice of Froude, who says in one of his Essays, "We want the biographies of common people," much trouble has been taken in collecting particulars of engineers, inventors, publishers, ship builders, electricians, railway managers, and others, whose biographies have, as a rule, been almost entirely neglected. Although the work is in alphabetical order, an Index of the most interesting matter has been added, in which will be found lists of actors' stage names, names of persons who are supposed to be alluded to in novels, fancy names by which people have been known, changes of names, and pseudonyms.

"MR. FREEMAN," says the *Academy*, "was by no means a judicial historian of the type now in fashion. His loves and hates were a great deal too hearty to permit of that, and he took sides without disguise. Indeed, his sympathies were so keen as to lead him into extravagances. He regarded himself as of pure Teutonic descent and living in a Teutonic *gau*, and he desired to vindicate the foremost place in history for the Germanic race. He was never tired of declaring that Charlemagne was not a Frenchman, and lamenting the terrible defeat that 'we' sus-

tained at Bouvines. But he was not merely given to crotchets and repetitions. His books suffered from the accumulation of details which led to their being perilously long, and his style was injured by the fact that most of what he wrote was dictated as he paced up and down the room, and he took little trouble in the way of subsequent correction.

"Mr. Freeman's remarkable gifts and acquirements met with but scanty reward. Late in life he became Professor of History at Oxford, yet, tardily as the honor came to him, he enjoyed the return to his university, although his delicate health of recent years had compelled him to pass part of each winter abroad. Hardly an historian of the first rank, and certainly not a writer of the highest class, he did much by his enthusiasm, by his wonderful stores of knowledge, by his honesty of conviction and genuine sympathy with research, to promote the study of history in this country."

AMONG the papyri brought from Egypt by Mr. Flinders Petrie were some fragments of the "De Adoratione" of St. Cyril of Alexandria. A paper on these fragments, which are supposed to be of the sixth century from their resemblance to the Codex Marchalianus, has just been published by the Royal Irish Academy, with facsimiles and transliterations by the Rev. J. H. Bernard, B.D.

THE following is the inscription beneath the bust of Richard Jefferies, which was unveiled recently in Salisbury Cathedral:

"To the memory of Richard Jefferies, born at Coate, in the parish of Chiseldon and county of Wilts, November 6, 1848; died at Goring, in the county of Sussex, August 14, 1887; who, observing the works of Almighty God with a poet's eye, has enriched the literature of his country and made for himself a place among those who have made men happier and wiser."

AN interesting case of literary conscience will be found in the American reprint of Mr. George Moore's last novel, "Vain Fortune," originally published in England by Messrs. Henry & Co. Shortly after the appearance of "Vain Fortune," Messrs. Charles Scribner's Sons made Mr. Moore an offer for the right of reprinting it in America. Mr. Moore, not satisfied with the book as it stood, stipulated that he should be allowed to rewrite his novel. This he has done with such thoroughness that the first half of the narrative has been entirely changed, and the main interest transferred from the hero to the heroine. Mr. Moore

considers his new version so much superior to the old one that the next English edition will be reprinted from the edition which has just appeared in America. The original English edition will therefore soon become a rarity.

At a recent sale at Messrs. Sotheby, Wilkinson & Hodge's rooms, an autograph letter of Sir Joshua Reynolds, referring to Dr. Johnson, realized, £14 10s. One of Sir W. Scott descriptive of his "Lady of the Lake," December 18th, 1810, £14 10s. A long letter of Shelley written to Leigh Hunt from Naples, December, 1818, £34. The original autograph ms. of Chapters IV. and V. of Thackeray's "Philip," 24½ pages, £88. A letter of Charles Lamb, accompanied by the autograph ms. of his well-known lines "on an infant dying as soon as born," £17 10s.

At the booksellers' Trade Dinner, held recently in London, Mr. F. Macmillan, who was in the chair, remarked that his firm had published last year 166 new books, of which 144 were written on commission or by authors of established reputation; the remaining 22 were the weedings of some 293 mss. sent to them for publication unsolicited.

THE report of Messrs. Chapman & Hall, Limited, for last year's trading announces a dividend at the rate of 7 per cent per annum on the preference shares, and 5 per cent per annum on the ordinary shares, with an addition to the reserve fund of £500, and carrying forward a small sum to the new account.

GERMAN papers announce the strange news that the Prussian Government intends establishing a kind of "Central Publishing Institution," which is to monopolize the publication of all school books throughout the country. If the report be true, the new measure is expected to be introduced by the Cultusminister in about two years.

MISCELLANY.

THE GERMAN EMPEROR'S POWER.—It must be recollected, although the Emperor's throne rests upon "a rock of bronze," the physical force of a perfectly disciplined and irresistible army drawn from the whole people, his initiative is chiefly powerful because opinion supports it. He always needs, for success, to transmute his will into a statute, and to do that he must obtain a Parliamentary majority from somewhere. There is no majority possible, either in the Prussian Landtag or the Ger-

man Reichstag, unless either the Liberals or the Catholics vote with the permanent followers of the Crown, the Conservatives; and while he has irritated the Liberals by introducing his Bill, he has bitterly disappointed the Catholics by withdrawing it. The latter thought they had realized an ideal system of education at last. The Liberals will doubtless return to him, as he has fallen into this quandary by removing their rock of offence; but still, the muddle has been very bad, and the doubts of the Emperor's critics have received full justification. His Majesty is clearly not so competent to govern successfully by himself, and guided only by his own thoughts, as he was believed to be, and the expectations of certain success to follow his action will no longer attend him. He has been, in fact, defeated upon a cardinal measure, and though the defeat is partly due to himself, that fact will not diminish the impression of ill-success. There can be no "crisis" in Germany or Prussia, for the Emperor still stands on Charlemagne's throne, with its feet of cannon-balls; but there will be hesitation and criticism where there has been only prompt and alarmed obedience. Resolution is the first quality in a monarch who, with a Constitution still in force, claims to be Premier as well as Sovereign; and the history of the Education Bill is not a history which suggests in its author immovable resolution. It is very wise, of course, to retrace one's steps upon due cause shown; but to jump into a ditch with a flourish of trumpets, only to clamber back again, is not a performance to stir enthusiasm. Nobody would have thought much of the Emperor's retreat but for the Brandenburg speech; but then, the Brandenburg speech suggested to the whole world, and was intended to suggest, the impossibility of his retreating.—*Spectator*.

LIFE ON THE WEST AFRICAN COAST.—The life is everywhere horrible. During the heavy rains, in beautiful Bathurst or in Sierra Leone, where nature revels in all the freshness of rich luxuriance, the reeking damp permeates everything, and everything which is not secured in soldered cases will be mildewed in twenty-four hours. When the country is being dried in the blinding sun-blaze, exhalations are drawn up from the fat, black vegetable mould, and the fevers and agues take visible shapes in the ghost-like vapors that go floating about after sundown. If you shut the windows you are stifled; if you open them

the fever-fiend drops in with the snakes, bats, and mosquitoes. But, undoubtedly, the terrors of life on that coast culminate in that vast delta of the Niger which lies to the eastward of Lagos. Steamers run up the infernal river for some few hundred miles; but the greater part of the western delta has never yet been surveyed. It is not worth surveying. It is sparsely inhabited by savage races who, like all the Niger tribes, are notoriously cannibals, and fanatical worshippers of the most degrading fetiches. Human sacrifices are a universal institution. Elsewhere, however, on the Brass, the Bonny, and the Old Calabar rivers, the ubiquitous trader has set down his foot. The whole of the country, for leagues in all directions, is swamp, intersected by sluggish stream or stagnant creek. Even the amphibious negro cannot live altogether among the alligators in odoriferous slime. But wherever there are a few roods of solid mud on a river bank, there he has run up groups of hovels, and made clearings for pigsties and provision-grounds. Opposite some of the bigger of these villages, dignified in treaties by the name of towns, the traders live in their floating hulks. The hulk itself is often comfortably furnished, and the accommodation, so far as it goes, is spacious. But the two or three occupants have only their own dismal company, or that of their foreign rivals in an opposition vessel, with whose speech they are unfamiliar. They may and must be bored to death, but they have no inducement to go ashore. There is no sport to be had in the impervious bush, although it swarms with ferocious carnivora and venomous creeping things. Their business communications with the bumptious native potentates, who are their purveyors and best customers, are generally strained and disagreeable. And having been seasoned by a succession of agues and fevers, their mental and bodily energy is at the lowest ebb. Their only active amusement in any case is wasting powder on the alligators, or shooting snipe, curlew, etc. When they land on the islands to pick up their game, they are as likely as not to be swallowed in quicksands, or rather in quick-mud. They dare not even bathe in the river, not only on account of the alligators, but because the inky waters give a loathsome skin disease. Taken internally, even when boiled and filtered, they are found to produce dysentery, goitre, dropsy, and, above all, an incurable elephantiasis. Involuntary siestas help to pass the day; but these are apt to induce sleepless nights, when the only sounds

that come to the ear and the throbbing brain are the splash of the water on the sides of the hulk, the scream of the hyena, or the wail of the night bird. It need scarcely be said that the food is disgusting and insufficient, unless the men condemned to the hulks fall back upon tinned meats. It is almost inevitable that they should betake themselves to steady drinking, and, as their salaries are limited, they are driven to indulge in fresh and fiery trade rum. So that before being stitched up in a blanket and dropped over the side, or consigned to an unconsecrated grave in the jungle, there is at the least the possibility of relieving the monotony of low fevers with what the Americans call "snakes in the boots" and attacks of delirium tremens. The race of the old "Palm Oil Ruffians," who are said to have practised nameless atrocities on the natives and on their dependents with practical impunity, has died out; and that is perhaps the best that can be said in favor of recent British rule. Their successors, who are the victims of circumstances, and their own worst enemies besides, are far more to be pitied than blamed. If we sent the best of our bishops on a prolonged mission to the Oil Rivers, we suspect he would sadly deteriorate in morals and manners.—*Saturday Review*.

M. RENAN ON REVEALED RELIGION.—The following extract is from M. Renan's "Souvenirs," about to be published shortly: "The inevitable ruin of professedly revealed religion must not involve the disappearance of religious feeling. Christianity has made us somewhat too difficult and exacting. We demand nothing short of Heaven, and we want to be quite sure of it. Let us be content with smaller profits. In the Jewish Consistory a few years ago M. de Rothschild was warmly supporting the doctrine of the immortality of the soul. An erudite Israelite of the old school, who told me the story, added, by way of reflection, 'Can you conceive such a thing? A man of such vast wealth to want his share of the Kingdom of Heaven into the bargain! Surely he might leave that to poor devils like you and me.' The Middle Ages were more consistent. Mankind, having the prospect of eternal life, were bound to suffer here below; but the brute creation, debarred from that privilege, had their recompense in this world. It is related that certain nuns had trained a doe to say her prayers to the Virgin, and she

would kneel at the altar with the marks of the utmost devotion. As does do not possess an immortal soul, and consequently cannot enter Paradise, the nuns considered that their little *prolégée* should have her reward in this life, and fed her on sweetmeats. We also read, in the lives of the Fathers, that the lion whose services St. Anthony retained to bury St. Paul worked with astonishing vigor to dig the grave. As a reward St. Anthony gave him his blessing, the result of which was that the lion immediately encountered a sheep, of which he made a meal. This was very fair to the lion, but was justice done to the sheep? Clearly not. We fear that, in the organization of the world, there is no trace of justice for the sheep. So let us take an example by the doe of the nuns aforesaid, and be thankful for small mercies."

STARBOARD AND PORT.—Since July 1st of last year the old words of command for altering the helm—viz., "starboard" or "port"—have been given up on board the ships of the North German Lloyds and the Hamburg-American lines, and the order "right" or "left" substituted. It is difficult to break with old customs, and seamen in especial are conservative; it is, therefore, not a matter of wonder that many old sailors look with great disfavor upon this latest innovation. On board the steamers of the two great lines mentioned above, however, the change has been made obligatory, and, according to a report forwarded to the directors by one of their oldest captains, who was himself opposed to the idea, has been attended with the happiest results. As soon as the order "right" is given, the telegraph is moved to the right, the wheel is revolved to the right, the ship turns to the right, the rudder indicator points right, the rudder itself moves right, and the steering mark on the compass as well; and so vice versa when the order "left" is given. Nothing can be simpler, and no possibility of mistake can arise. The objection has been raised that the new words of command are not international, and are therefore illegal. This statement, however, will not hold good, as both English and American pilots, in whom every one has confidence, have made no difficulties in using the new words of command when piloting ships of the two before-mentioned companies.—*Nautical Magazine*.